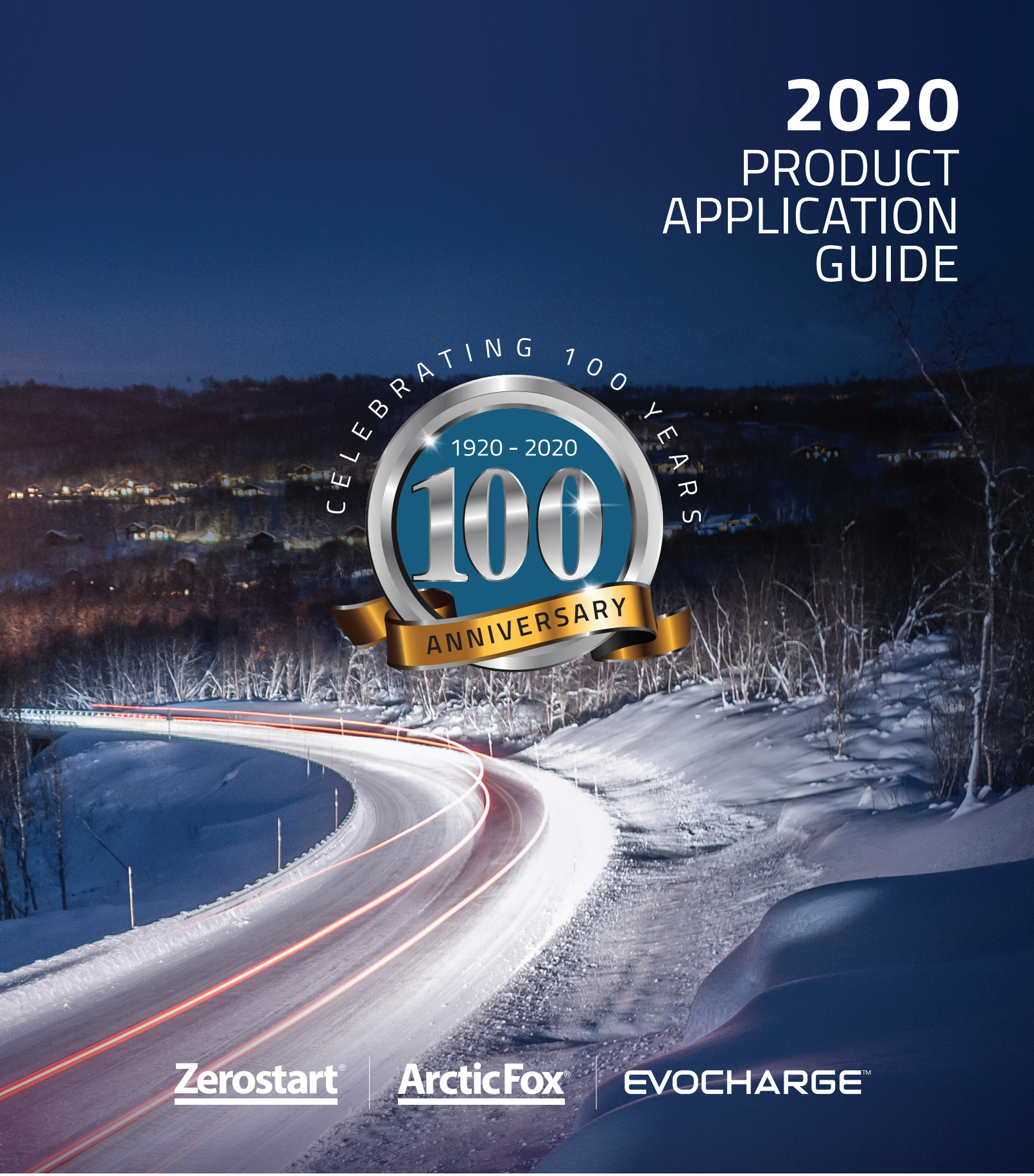
2020 PRODUCT APPLICATION GUIDE



Zerostart® | ArcticFox® | EVOCHARGE™

PHILLIPS & TEMRO industries®

phillipsandtemro.com

PHILLIPS & TEMRO industries®

A Century of Expertise You Can Trust!

ABOUT US

Phillips & Temro Industries (PTI) is a global OEM and aftermarket provider of custom engineered thermal systems and solutions. Trucking, automotive, oil and gas and off-road vehicles and power generation are just a few of the diverse markets that benefit from PTI's heating, cooling and electrification solutions. PTI manages the entire process from concept design, prototyping, and testing to delivery with a focus on quality. PTI's portfolio of industry leading brands, include Zerostart®, Arctic Fox®, Idle Free® Systems, Truflo™ and EVOCHARGE®.

RESOURCES

WEBSITE

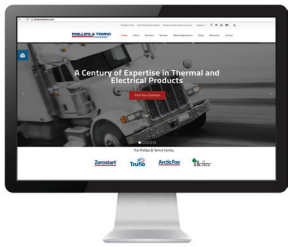
Visit our website at phillipsandtemro.com for a full range of resources.

- Frequently Asked Questions
- On-Line Catalog
- Parts Lookup & Where to Buy
- Product Data Sheets
- Safety Data Sheets
- Tools
- Videos
- White Papers

ADVERTISING & MARKETING

Advertise Phillips & Temro products more effectively with these marketing tools:

- **Product Images – Web or Print**



- **Installation Videos**
  Silicone Pad Adhesive
  Silicone Pad Battery
  Silicone Pad Diesel Fuel Filter
  Battery Blanket

- **Product Videos**
  What Causes Diesel Fuel Gelling?
  Fuel & Fluid Warming
  Coolant Dam
  Forced Flow Circulation Heater
  Contract Manufacturing

- **White Papers**
  The Cold, Hard Facts on Diesel Fuel Gelling
  Prevent Engine Heater Hassles in Power Generation
  Learn More About Silicone Pads

Zerostart® Truflo® ArcticFox® idlefree® EVOCHARGE™

PHILLIPS & TEMRO industries®

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CERTIFICATIONS

Eden Prairie, MN
IATF 16949: 2016
ISO 14001: 2015

Delano, MN
ISO 9001: 2015

WARRANTY

The Phillips & Temro Industries warranty statement is located on the website at phillipsandtemro.com/terms.

NEW PRODUCTS

Electric Vehicle Charging Stations (Level 2) & Cable Management Systems

EVOCHARGE provides a convenient solution for charging electric vehicles in residential (single & multi-family), commercial, and fleet applications.

- Flexible, True Open Protocol Network Enabled (OCPP 1.6; iEVSE & iEVSE Plus Models)
- Up to 8X FASTER than Level 1 Chargers
- SAE J1772 Standard – Compatible with all Electric Vehicles sold in North America
- NEMA 4 Rated – Indoor & Outdoor Applications

Charging Stations

Select the charging station that fits your residential, commercial or fleet application.

- Current Supply Circuit: 208-240VAC Single Phase
- 7.2 – 7.7 kW
- Adjustable Maximum Current Output: 32A (30A for EVOREEL), 24A, 16A (Supports multiple circuit ratings 40A, 30A, 20A)
- Electrical Connection: Hardwire and Plug-in (NEMA 6-50) options
- Multiple Cable Length Options: 18 ft., 25 ft., and optional, industry leading 30 ft. length available with EVOREEL
- Includes standard holster for cord management

EV Plug
SAE J1772

Plug Type
NEMA 6-50

Product Selections	Features	EVSE	iEVSE®	iEVSE® Plus
Non-Networked	Standard Model–No Network Capability	✔		
Wi-Fi Enabled	▪ Access Control ▪ Control Data Collection ▪ Demand Response ▪ Local Load Management ▪ Mobile App Capability ▪ Remote Monitoring		✔	✔
Wi-Fi & LTE Cellular				✔
RFID Technology	Supports RFID Card Access Control & User Authorization			✔

Part Number	Model	Description	Cable Length
EVC3AA0B2A1A1	EVSE	EVOCHARGE Wall Mount Charging Station with Retractor	25'
EVC3AA0A2E1A1	EVSE	EVOCHARGE Charging Station Wall Mount	18'
EVC3AA0B2E1A1	EVSE	EVOCHARGE Charging Station Wall Mount	25'
EVC3AB0B2A1A1	iEVSE	EVOCHARGE Wall Mount Charging Station with Retractor	25'
EVC3AB0A2E1A1	iEVSE	EVOCHARGE Charging Station Wall Mount	18'
EVC3AB0B2E1A1	iEVSE	EVOCHARGE Charging Station Wall Mount	25'
EVC3AC0B1A1A1	iEVSE Plus	EVOCHARGE Wall Mount Charging Station with Retractor	25'
EVC3AC0A1E1A1	iEVSE Plus	EVOCHARGE Charging Station Wall Mount	18'
EVC3AC0B1E1A1	iEVSE Plus	EVOCHARGE Charging Station Wall Mount	25'

Wall or Pedestal Mounting Options

All charging stations come come standard with a wall mount bracket to all for single stud installation, or choose an optional EVOCHARGE pedestal for ground mount.

- Flexible pedestal design supports single and dual port charging station configurations
- Pedestals range in height from 4′ – 6′ – 8′

Cable Management

Keeps cables off the ground for convenient use & storage of the charging cable.

Holster

The cable is wound by hand and set on the holster until the next charge. Holster comes standard with each charging station.

Retractor

A spring loaded tether, suspends cable keeping it off the ground during charging and storage. The cable retractor can be mounted to a wall or on a EVOCHARGE pedestal.

EVOREEL®

Industry-leading, premium cable management solutions.

The self retractable cable reel extends to the desired length when charging and retracts back into the reel for convenient out of the way storage. The EVOREEL can be mounted overhead on the wall or on a EVOCHARGE pedestal.

Cable Lengths: 22′ or 30′

Interconnect Cable Lengths: 3′ (standard), 10′ or 20′

Part Number	Description	Cable Length
EVC0111B	EVOREEL Cable Management with J1772 Inlet Adapter	22'
EVC0101B	EVOREEL Cable Management Hardwire Configuration	22'
EVC0201	Cable Retractor	
EVC0402	Pedestals - 4ft	
EVC0403	Pedestals - 6 ft	
EVC0404	Pedestals - 8 ft	
EVC0301	Holster	
EVC0601	Charging Station Mounting Bracket	

Custom Configurations & Additional Accessories Are Available

NEW PRODUCTS

FORCED FLOW CIRCULATION HEATER

Circulate warm coolant throughout the engine to provide even heat distribution.

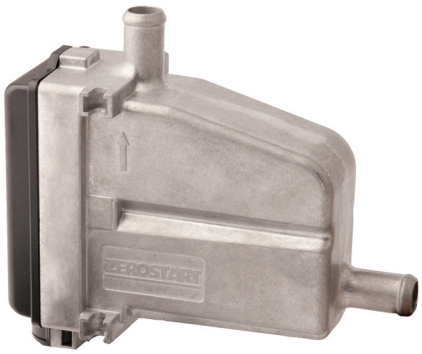
APPLICATIONS

- Diesel or Natural Gas Gensets

FEATURES

- 24 New Part Numbers
- 3 Thermostat Settings
- 2 Cord Lengths
  - 6' (1.8 m)
  - 12' (3.7 m)
- Element Service Kits
- Pump Service Kits

See Pages 112-113



TANK CIRCULATION HEATER

Thermosiphon tank heater provides dependable pre-heating for engine starts.

APPLICATIONS

- Diesel & Gas Gensets
- Compressors
- Agriculture

FEATURES

- 65 Part Numbers
- 120 & 240 Volt Options for all (3) thermostat ranges
- 2 Cord Lengths
  - 5' (1.5 m)
  - 12' (3.6 m)

See Pages 117-118

Zerostart® ArcticFox®

SILICONE HEATERS

Oil
Hydraulic
Transmission Fluid
Diesel Fuel Filters

MAGNET HEATER

Multi-Purpose, Portable Heater

BATTERY HEATERS

Automotive
Heavy Duty
Industrial

SILICONE PAD HEATERS

ADHESIVE – SILICONE PAD HEATERS

Silicone pad heater that is easily installed with adhesive mounting and silicone weatherproofing for installation on smooth metal surfaces. Warm internal engine components for quick starts and reduce engine wear by improving the flow of engine fluids.
Cord Length: 6' (1.8 m)

Part No.	Volts	Watts	Amp	Width	Length	Plug Type	Thermostat
3400070	12 DC	7	0.6	1" (2.5cm)	2" (5.1cm)	Blunt - 2 Wire	
3400071	12 DC	80	6.7	1-1/2" (4cm)	8" (20cm)	Blunt - 2 Wire	
3400074	12 DC	80	6.7	1-3/4" (4.5cm)	3-1/4" (9cm)	Blunt - 2 Wire	
3400051	12 DC	50	4.2	3" (7.6cm) Square	3" (7.6cm) Square	Blunt - 2 Wire	
3400052	12 DC	125	10.4	4" (10 cm)	4" (10 cm)	Blunt - 2 Wire	
3400053	12 DC	250	20.8	5" (13cm)	5" (13cm)	Blunt - 2 Wire	
3400076	24 DC	80	3.4	1-1/2" (4cm)	4" (10cm)	Blunt - 2 Wire	
3400030	120	50	0.4	1-1/4" (3cm)	3-1/2" (9cm)	A - Nema 5-15	170-200°F (77-93°C)
3400118	120	50	0.4	1-1/4" (3cm)	3-1/2" (9cm)	A - Nema 5-15	270-300°F (132-149°C)
3400060	120	50	0.4	1-1/4" (3cm)	3-1/2" (9cm)	A - Nema 5-15	
3400032	120	125	1	1-1/2" (4cm)	6" (15cm)	A - Nema 5-15	170-200°F (77-93°C)
3400119	120	125	1	1-1/2" (4cm)	6" (15cm)	A - Nema 5-15	270-300°F (132-149°C)
3400062	120	125	1	1-1/2" (4cm)	6" (15cm)	A - Nema 5-15	
3400072	120	125	1	2-1/4" (5.7cm)	4" (10cm)	A - Nema 5-15	
3400100	120	250	2.1	2-3/4" (7cm)	6-1/2" (16.5cm)	A - Nema 5-15	
3400031	120	125	1	3" (7.6cm) Round	3" (7.6cm) Round	A - Nema 5-15	170-200°F (77-93°C)
3400120	120	125	1	3" (7.6cm) Round	3" (7.6cm) Round	A - Nema 5-15	270-300°F (132-149°C)
3400061	120	125	1	3" (7.6cm) Round	3" (7.6cm) Round	A - Nema 5-15	
3400033	120	250	2.1	3-1/2" (9.5cm)	4-1/2" (11cm)	A - Nema 5-15	170-200°F (77-93°C)
3400121	120	250	2.1	3-1/2" (9.5cm)	4-1/2" (11cm)	A - Nema 5-15	270-300°F (132-149°C)
3400063	120	250	2.1	3-1/2" (9.5cm)	4-1/2" (11cm)	A - Nema 5-15	
3400087	120	420	3.5	4-1/2" (11cm)	6-1/2" (16.5cm)	A - Nema 5-15	270-300°F (132-149°C)
3400117	120	420	3.5	4-1/2" (11cm)	6-1/2" (16.5cm)	A - Nema 5-15	
3400034	120	500	4.2	5" (13cm)	7" (18cm)	A - Nema 5-15	170-200°F (77-93°C)
3400122	120	500	4.2	5" (13cm)	7" (18cm)	A - Nema 5-15	270-300°F (132-149°C)
3400064	120	500	4.2	5" (13cm)	7" (18cm)	A - Nema 5-15	
3400108	120	60	0.5	5-1/2" (14 cm)	8-1/2" (21.6 cm)	E - Nema 1-15P	
3400065	120	1000	8.3	6" (15cm)	10-3/4" (27cm)	A - Nema 5-15	
3400035	120	1000	8.3	6" (15cm)	10-3/4" (27cm)	A - Nema 5-15	170-200°F (77-93°C)
3400123	120	1000	8.3	6" (15cm)	10-3/4" (27cm)	A - Nema 5-15	270-300°F (132-149°C)
3400110	120	300	2.5	8-1/2" (21.6 cm)	14-1/2" (37cm)	A - Nema 5-15	
3400107	120	1500	12.5	8-1/2" (21.6 cm)	14-1/2" (37cm)	A - Nema 5-15	
3400073	220	125	0.6	2-1/4" (5.7cm)	4" (10cm)	Blunt - 3 Wire	
3400075	220	250	1.1	3-1/2" (9.5cm)	4-1/2" (11cm)	Blunt - 3 Wire	
3400078	220	500	2.3	5" (13cm)	7" (18cm)	Blunt - 3 Wire	
3400080	220	1000	4.5	6" (15cm)	10-3/4" (27cm)	Blunt - 3 Wire	
3400092	240	125	0.5	1-1/2" (4cm)	6" (15cm)	Blunt - 3 Wire	
3400082	240	125	0.5	1-1/2" (4cm)	6" (15cm)	B - Nema 6-15	270-300°F (132-149°C)
3400090	240	250	1	2-3/4" (7cm)	6-1/2" (16.5cm)	Blunt - 3 Wire	
3400091	240	125	0.5	3" (7.6cm) Round	3" (7.6cm) Round	Blunt - 3 Wire	
3400081	240	125	0.52	3" (7.6cm) Round	3" (7.6cm) Round	B - Nema 6-15	270-300°F (132-149°C)
3400093	240	250	1	3-1/2" (9.5cm)	4-1/2" (11cm)	Blunt - 3 Wire	
3400083	240	250	1	3-1/2" (9.5cm)	4-1/2" (11cm)	B - Nema 6-15	270-300°F (132-149°C)
3400094	240	500	2.1	5" (13cm)	7" (18cm)	Blunt - 3 Wire	
3400084	240	500	2.1	5" (13cm)	7" (18cm)	B - Nema 6-15	270-300°F (132-149°C)
3400095	240	1000	4.2	6" (15cm)	10-3/4" (27cm)	Blunt - 3 Wire	
3400085	240	1000	4.2	6" (15cm)	10-3/4" (27cm)	B - Nema 6-15	270-300°F (132-149°C)
3400097	240	1500	6.25	8-1/2" (21.6 cm)	14-1/2" (37cm)	Blunt - 3 Wire	

Certifications				Oil Pan Capacity		Hydraulic/Transmission Fluid	
US & Can	US	US & Can	Europe	Qts/Gal	Liters	Qts/Gal	Liters
		Yes	Yes	Spot heating, valves & fittings			
		Yes	Yes			0.5 - 6 Qts	0.47 - 5.7
		Yes	Yes			0.5 - 6 Qts	0.47 - 5.7
		Yes	Yes			1 - 5 Qts	0.94 - 4.7
		Yes	Yes			2 - 3 Gal	7.6 - 11.4
		Yes	Yes			3 - 5 Gal	11.4 - 18.9
		Yes	Yes			0.5 - 6 Qts	0.47 - 5.7
Yes				1 - 3 Qts	0.94 - 2.8	Less than 1 Gal	
Yes				1 - 3 Qts	0.94 - 2.8	Less than 1 Gal	
	Yes			1 - 3 Qts	0.94 - 2.8	Less than 1 Gal	
Yes				3 - 6 Qts	2.8 - 5.7	1-7 Gal	3.8 - 26.5
Yes				3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
	Yes			3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
	Yes			1.5 - 4 Qts	1.4 - 3.8	1 - 10 Gal	3.8 - 37.9
	Yes			5 - 13 Qts	4.7 - 12.3	6 - 16 Gal	22.7 - 60.6
Yes				3 - 6 Qts	2.8 - 5.7	1 - 7 Gal	3.8 - 26.5
Yes				3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
	Yes			3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
Yes				5 - 13 Qts	4.7 - 12.3	10 - 30 Gal	37.9 - 113.6
Yes				5 - 13 Qts	4.7 - 12.3	6 - 16 Gal	22.7 - 60.6
	Yes			5 - 13 Qts	4.7 - 12.3	6 - 16 Gal	22.7 - 60.6
Yes				13 - 27 Qts	12.3 - 25.5	20 - 50 Gal	75.7 - 189.3
	Yes			13 - 27 Qts	12.3 - 25.5	20 - 50 Gal	75.7 - 189.3
Yes				13 - 27 Qts	12.3 - 25.5	20 - 50 Gal	75.7 - 189.3
Yes				13 - 27 Qts	12.3 - 25.5	16 - 32 Gal	60.6 - 121.1
	Yes			13 - 27 Qts	12.3 - 25.5	16 - 32 Gal	60.6 - 121.1
	Yes					1 - 4 Gal	3.8 - 15.1
	Yes			26 - 48 Qts	24.6 - 45.4	31 - 100 Gal	117.3 - 378.5
Yes				26 - 48 Qts	24.6 - 45.4	50 - 100 Gal	189.3 - 378.5
Yes				26 - 48 Qts	24.6 - 45.4	31 - 100 Gal	117.3 - 378.5
	Yes			5 - 13 Qts	4.7 - 12.3	10 - 30 Gal	37.9 - 113.6
	Yes			12 - 40 Gal	45.4 - 151.4	58 - 192 Gal	219.6 - 726.8
		Yes	Yes	1.5 - 4 Qts	1.4 - 3.8	1 - 10 Gal	3.8 - 37.9
		Yes	Yes	4.5 - 12 Qts	4.3 - 11.4	10 - 30 Gal	37.9 - 113.6
		Yes	Yes	3 - 6 Gal	11.4 - 22.7	20 - 50 Gal	75.7 - 189.3
		Yes	Yes	6.5 - 12 Gal	24.6 - 45.4	50 - 100 Gal	189.3 - 378.5
		Yes	Yes	3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
Yes			Yes	3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
		Yes	Yes	5 - 13 Qts	4.7 - 12.3	6 - 16 Gal	22.7 - 60.6
		Yes	Yes	3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
Yes			Yes	3 - 6 Qts	2.8 - 5.7	Up to 5 Gal	Up to 18.9
		Yes	Yes	5 - 13 Qts	4.7 - 12.3	6 - 16 Gal	22.7 - 60.6
Yes			Yes	5 - 13 Qts	4.7 - 12.3	6 - 16 Gal	22.7 - 60.6
		Yes	Yes	13 - 27 Qts	12.3 - 25.5	16 - 32 Gal	60.6 - 121.1
Yes			Yes	13 - 27 Qts	12.3 - 25.5	16 - 32 Gal	60.6 - 121.1
		Yes	Yes	26 - 48 Qts	24.6 - 45.4	31 - 100 Gal	117.3 - 378.5
Yes			Yes	26 - 48 Qts	24.6 - 45.4	31 - 100 Gal	117.3 - 378.5
		Yes	Yes	12 - 40 Gal	45.4 - 151.4	58 - 192 Gal	219.6 - 726.8

SILICONE PAD HEATERS

SILICONE PAD HEATERS – DIESEL FUEL FILTER

Flexible silicone pad heater that snuggly wraps around metal diesel fuel filters with a with a hook & loop closure.

- Use with metal filters only
- Fits diesel fuel filters from 2-3/4" – 5" (8.9 – 12.7cm)

Part No.	Watts	Volts	Amp	Height	Fits Filter Diameter	Plug Type	Cord Length	T-Stat	Certifi-cations
3400039	50	12 DC	4.2	3.0" (7.6 cm)	2-1/2 to 3-1/2" (6.4 to 8.9cm)	Blunt - 2 Wire	6' - 72" - 1.8m	–	–
3400037	100	12 DC	8.3	4" (10.2 cm)	3-3/4 to 5" (9.5 to 12.7cm)	Blunt - 2 Wire	6' - 72" - 1.8m	–	–
3400040	100	24	4.2	4" (10.2 cm)	3-3/4 to 5" (9.5 to 12.7cm)	Blunt - 2 Wire	6' - 72" - 1.8m	–	–
3400101	40	120	0.3	2-1/4" (5.7 cm)	2-1/2 to 3-3/8" (6.4 to 8.6cm)	E - Nema 1-15P	6' - 72" - 1.8m	–	–
3400124	100	120	0.8	4" (10 cm)	3-3/4 to 5" (9.5 to 12.7cm)	E - Nema 1-15P	6' - 72" - 1.8m	–	–

Non CSA models are not available for purchase in Canada

HEAT-MAGNET®

Part No. 3400017

- 200 Watt – 120 Volt AC
- Plug Type: Nema 5-15
- Built-in thermostat maintains optimum temperature-will not exceed 250°F (121°C)
- Quick grip handle protects hands from heat
- Dimensions – Length: 4-3/8" (11cm), Width: 2-1/2" (6.3cm), Height: 3" (7.5cm) (including handle)

BATTERY HEATERS

Zerostart®

Electric heating that is applied directly to the battery for reliable cold-weather starting.

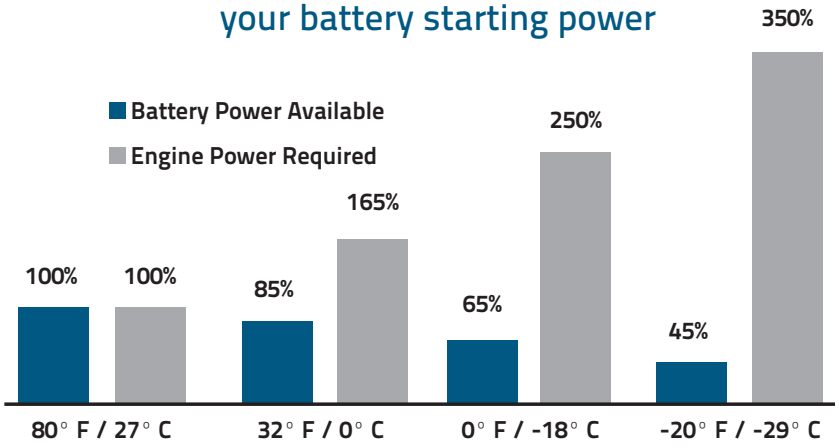
BENEFITS

- Maintain available cold cranking amps in cold weather by warming the batteries
- Efficient direct heat transfer
- Install in sub-zero temperatures
- Improved recharge time

TYPES OF BATTERY HEATERS

- Silicone
- Blanket
- Box
- Heavy Duty Heat Exchanger

How temperature affects your battery starting power



SILICONE PAD – BATTERY HEATER

Model Specific

Silicone pad heater placed underneath the batteries.

- Silicone material is resistant to battery acid
- Slim design to fit in the battery box/tray
- Cord Length: 6' (1.8 m)

								Certifications			
Part No.	Watts	Volts	Amp	Width	Length	Plug Type	T-Stat	US & Can	US	US & Can	Europe
3400103	25	120	0.2	3" (7.6 cm)	5" (12.7 cm)	E - Nema 1-15P	–	–	Yes	–	Yes
3400066	60	120	0.5	5-1/2" (14 cm)	8-1/2" (21.6 cm)	E - Nema 1-15P	–	–	Yes	–	Yes
3400036	60	120	0.5	5-1/2" (14 cm)	8-1/2" (21.6 cm)	A - Nema 5-15	–	Yes	–	–	Yes
3400104	80	120	0.7	6-1/2" (16.5cm)	10-1/2" (26.7 cm)	E - Nema 1-15P	–	–	Yes	–	Yes
3400038	180	120	1.5	20-1/2"	13" (33 cm)	A - Nema 5-15	–	Yes	–	–	Yes
3400068	180	120	1.5	20-1/2"	13" (33 cm)	E - Nema 1-15P	–	–	Yes	–	Yes
3400102	180	120	1.5	20-1/2"	13" (33 cm)	E - Nema 1-15P	–	–	Yes	–	Yes
3400086	60	240	0.25	5-1/2" (14 cm)	8-1/2" (21.6 cm)	B - Nema 6-15	–	Yes	–	–	Yes
3400096	60	240	0.25	5-1/2" (14 cm)	8-1/2" (21.6 cm)	Blunt - 3 Wire	–	–	–	Yes	Yes

NOTICE: This product is NOT recommended for use with lithium ion batteries, nickel cadmium batteries or with battery case material ABS.
Non CSA models are not available for purchase in Canada.
UL recognized models are available and can be sold to OEM manufacturers.

BLANKET – BATTERY HEATER

Thinsulate™ thermal blanket that wraps around the battery to maintain temperature in cold or warm weather.

- Warms battery core to 60-70° above ambient temperature for quick starts
- Grounded cord 30" (76cm) in length

Part No.	Watts	Volts	Height	Width	Length	Plug Type	Fits Batteries	Certification
2800055	50	120 AC	5" (12.7cm)	1/2" (1.1cm)	28" (71cm)	A - NEMA 5-15	Series 22NF, 26, 26R, 51, 51R, 70	CSA
2800063	80	120 AC	5" (12.7cm)	1/2" (1.1cm)	36" (91cm)	A - NEMA 5-15	Series 24, 24F, 24H, 24R, 24T, 25, 27, 27F, 27H, 31, 34, 34R, 35, 74, 38	CSA
2800071	160	120 AC	5" (12.7cm)	1/2" (1.1cm)	72" (183cm)	A - NEMA 5-15	Truck Batteries, Series – Parallel Systems	CSA

Thinsulate™ is a registered trademark of 3M corporation.

NOTICE: This product is NOT recommended for use with lithium ion batteries, nickel cadmium batteries or with battery case material ABS.

BOX – BATTERY HEATER

Box heater with a preset thermostat that maintains 80°F (27°C) battery warmth

- Designed to fit in the battery box/tray
- Grounded cord 8' (2.4m) in length

Part No.	Watts	Volts	Width	Length	Height	Plug Type	Certification
8500320	200	120 AC	6" (15cm)	9" (23cm)	3/4" (1.9cm)	A - NEMA 5-15	–
8500339	200	240 AC	6" (15cm)	9" (23cm)	3/4" (1.9cm)	B - NEMA 6-15	–

NOTICE: This product is NOT recommended for use with lithium ion batteries or nickel cadmium batteries.

Non CSA models are not available for purchase in Canada.

BATTERY HEATERS

BH-3100 SERIES

The Arctic Fox BH-3100 battery warmer circulates warm coolant from the engine or auxiliary heater through the stainless steel tubes to keep batteries at optimal temperature. This heavy duty solution can be fitted with a by-pass thermostat that measures the air temperature inside the battery box for year round operation.

FEATURES

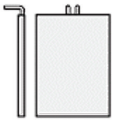
- Available for all Group 31 Battery Configurations
- Utilizes Heat Energy From Engine Coolant or Diesel Fired Auxiliary Heater
- Durable Stainless Steel Coolant Tubes
- Light Weight Aluminum Heating Plate
- 1/2" NPT Coolant Connections
- Require Minimum 1" (25.4mm) Clearance Above Batteries

OPTIONS AVAILABLE

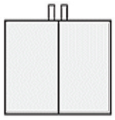
- By-Pass Thermostat
- Custom Sizes Quoted Upon Request

Part Number	Length Inches/mm	Width Inches/mm
BH-3101	12-7/8" (327mm)	6-5/8" (168mm)
BH-3102	13" (330mm)	13" (330mm)
NOTE: BH-3102—Both batteries may be placed parallel or perpendicular to the coolant ports.		
BH-3103	21" (533mm)	14" (356mm)
BH-3104	27" (686mm)	14" (356mm)
NOTE: BH-3104—All 4 batteries may be placed parallel or perpendicular to the coolant ports, or 2 either way.		
BH-3110	21-1/2" (546mm)	11" (279mm)
BH-3113	21-1/2" (546mm)	11" (279mm)
BH-3119	21" (526mm)	8-1/2" (216mm)
BH-3124	25-1/4" (641mm)	6-1/4" (159mm)

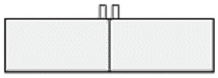
BH-3101
BH-3110
BH-3119



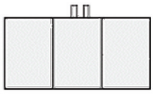
BH-3113



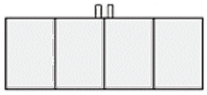
BH-3102



BH-3124



BH-3103

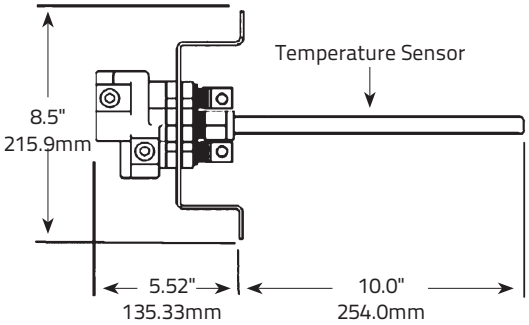


BH-3104

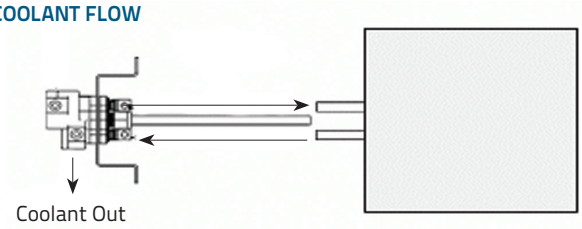
BY-PASS THERMOSTAT
Part No. BPT-2800

Measures air temperature inside the battery box
Maintains temperature approx. 80°F (27°C)

DIMENSIONS

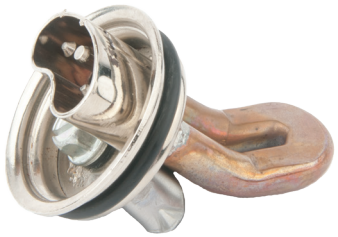


COOLANT FLOW



Schematic for Battery Warmer with Optional By-Pass Thermostat

2 ENGINE BLOCK & IMMERSION HEATERS

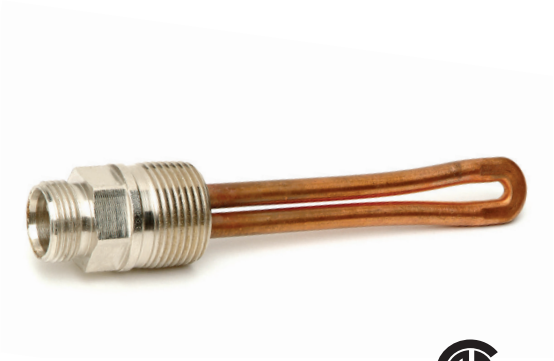


V-LOCK BLOCK HEATER

- Fits directly into the frost plug port
- Copper heating element
- Plated steel or forged brass adapter

CHAUFFE-MOTEUR VERROUILLAGE V-LOCK

- S'adapte directement dans l'orifice du bouchon expansible
- Élément chauffant en cuivre
- Adaptateur en acier plaqué ou en laiton forgé



THREADED HEATER

- Threads directly into the engine block
- Copper or stainless heating element
- Plated steel

CHAUFFE-MOTEUR FILETÉ

- Se visse directement dans le bloc moteur
- Élément chauffant en cuivre ou en acier inoxydable
- Acier plaqué

CARTRIDGE HEATER

- Heater is placed directly into a dry port of the engine
- Quick installation
- No need to drain the engine coolant

PLATE/BOLT-ON HEATER

- Mounts to engine block
- Copper heating element
- Plated steel

CARTOUCHE CHAUFFE-MOTEUR

- Le chauffe-moteur est placé directement dans une cavité sèche du moteur
- Installation rapide
- Il n'est pas nécessaire de vidanger le liquide de refroidissement du moteur

CHAUFFE-MOTEUR / PLAQUE BOULONNÉE

- S'installe sur le bloc moteur
- Élément chauffant en cuivre
- Plaque en acier

AUTOMOTIVE & LIGHT-DUTY TRUCK APPLICATIONS

COLUMN DESCRIPTIONS

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No Std Cord	Repl. Cord Part No Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
Year(s), type of engine, size/model of engine, possible additional information.								
1956-1962 V8 327 CID	3100039	3100124	3600006	3600116	1-1/2"	LC or RC	6 o'clock	1

Heater Part No. Standard Plug
Immersion/Freeze plug part number with standard cord
Heater Part No. Lit Plug
Immersion/Freeze plug part number with lit cord

Replacement Cord Part No. Standard
Standard cord replacement part number
Replacement Cord Part No. Lit
Lit cord replacement part number

Bore Diameter
Freeze Plug Heaters will list a size similar to the above heater (English or metric). Threaded type heaters will list "THD" after the size. Heaters with NPT threads will list "NPT" after the size. "Clamp-On" entry indicates an external bolt-on type heater is recommended. "Cartridge" entry indicates that a cartridge type heater is recommended.

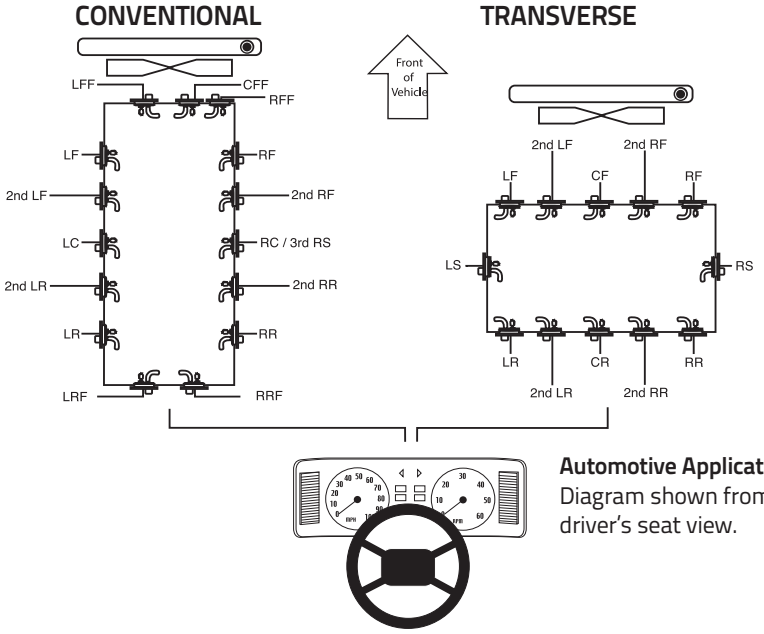
Installation location
Use chart below to assure proper installation location.

Point element
Use the clock position listed to determine the direction the element should point. "N/A" entry indicates a threaded heater with no element bend, or recommended heater has no requirements for element direction.

Notes
If a number appears in this column, see page 36 for important information regarding application.

INSTALLATION LOCATION

Where a Freeze Plug style heater is specified, use the chart below to determine the proper mounting location. Unless otherwise noted, freeze plugs are numbered from front.



Automotive Applications:
Diagram shown from driver's seat view.

CFF ..... Center Front Face
CF ..... Center Front
CR ..... Center Rear
F ..... Front
FF ..... Front Face of Block
LC ..... Left Center
LF ..... Left Front
2ND LF ..... 2ND from Left, Front
LFF ..... Front Face, Left Cylinder
LLC ..... Left Side, Lower Center
LR ..... Left Rear
LRF ..... Left Rear Face
2ND LR ..... 2ND from Left, Rear
LS ..... Left Side
R ..... Rear
RC ..... Right Center
Rear ..... Rear Face or Side
RF ..... Right Front
2ND RF ..... 2ND from Right Front
RFF ..... Front Face, Right Cylinder Head
RR ..... Right Rear
RRF ..... Right Rear Face
RS ..... Right Side
3RD RS ..... 3RD from Firewall (FW) Right Side
2ND RR ..... 2ND Core Hole from the Right Rear

APPLICATIONS AUTOMOBILES ET CAMIONS LÉGERS

DES COLONNES

CHAUFFE-MOTEUR À IMMERSION (SAUF INDICATION CONTRAIRE)								
MARQUE, MODÈLE, ANÈE & MOTEUR	Chauffe moteur No. pièce		Cordon de rempl. No. pièce		Diamètre de l'alésage	Emplacement pour Installation	Orientation de l'élément	Notes*
	Standard	Lumineux	Standard	Lumineux				
Année(s), type de moteur, puissance/modèle du moteur, renseignements supplémentaires possibles.								
1956-1962 V8 327 CID	3100039	3100124	3600006	3600116	1-1/2"	LC or RC	06 heures	1

No de pièce du chauffe-moteur – Cordon standard
Numéro de pièce du chauffe-moteur/thermoplongeur avec cordon standard
No de pièce du chauffe-moteur – Cordon lumineux
Numéro de pièce du chauffe-moteur/thermoplongeur avec cordon lumineux

No de pièce du cordon de rechange – Standard
Numéro de pièce du cordon de rechange standard
No de pièce du cordon de rechange - Lumineux
Numéro de pièce du cordon de rechange lumineux

Diamètre de l'alésage
Les chauffe-moteurs à immersion montreront une taille similaire au chauffe-moteur ci-dessus (unité anglaise ou métrique). Les chauffe-moteurs de type fileté montreront THD suite à la grandeur affichée. Les chauffe-moteurs avec le filetage de la norme National Pipe Thread montreront NPT suite à la grandeur affichée. L'inscription "Clamp-On" recommande un chauffe-moteur à installation externe tandis que l'inscription "Cartridge" un chauffe-moteur à cartouche.

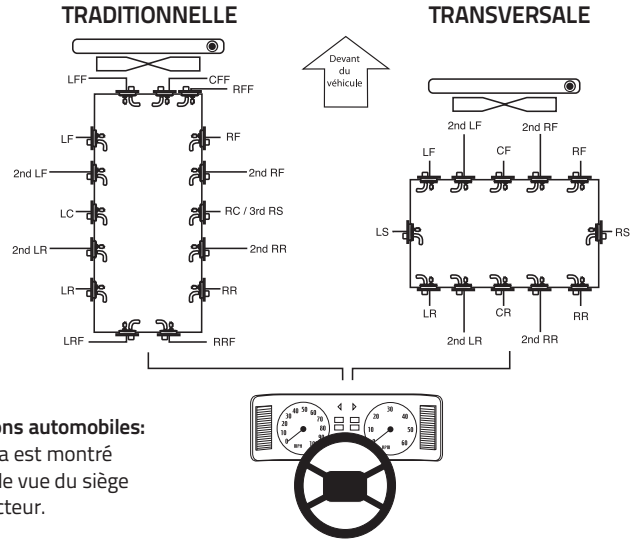
Site d'installation
Utilisez le graphique ci-dessous pour vous assurer du site d'installation approprié.

Orientation de l'élément
Utilisez la position horaire inscrite pour établir la direction dans laquelle l'élément doit être orienté. « S.O. » indique un réchauffeur fileté sans courbure de l'élément ou un réchauffeur recommandé sans exigences relatives à l'orientation.

Remarques
Si un numéro apparaît dans cette colonne, consultez la page 36 pour des renseignements importants concernant l'utilisation.

EMPLACEMENT POUR L'INSTALLATION

Si un chauffe-moteur est indiqué, utilisez le graphique ci-dessous pour déterminer l'emplacement approprié pour le montage. À moins d'indication contraire, les chauffe-moteurs sont numérotés sur le devant.



Applications automobiles:
Le schéma est montré du point de vue du siège du conducteur.

CFF ..... Face avant au centre
CF ..... Avant au centre
CR ..... Arrière au centre
F ..... Avant
FF ..... Face avant du bloc
LC ..... Centre gauche
LF ..... Gauche avant
2ND LF ..... 2e de la gauche, avant
LFF ..... Face avant, cylindre gauche
LLC ..... Côté gauche, centre inférieur
LR ..... Gauche arrière
LRF ..... Gauche arrière avant
2ND LR ..... 2e de la gauche arrière
LS ..... Côté gauche
R ..... Arrière
RC ..... Centre droit
Rear ..... Arrière
RF ..... Droite avant
2ND RF ..... 2e de la droite avant
RFF ..... Face avant, culasse droite
RR ..... Droite arrière
RRF ..... Droite arrière avant
RS ..... Côté droit
3RD RS ..... 3e de la cloison pare-feu (CD) côté droit
2ND RR ..... 2e bouchon de la droite arrière

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
ACURA								
AUTOMOTIVE								
4 Cylinder								
1996-2000 L4 – 1.6L	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
1987-1989 L4 – 1.6L	3400001		3600002		Clamp-On	N/A	N/A	
2002-2005 L4 – 1.7L	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
1990-2001 L4 – 1.7, 1.8L	3100006	3100124	3600005	3600117	28 MM THD	RF	N/A	
2002-2006 L4 – 2.0L (RSX)	3100006	3100124	3600005	3600117	28 MM THD	RR	N/A	
2006-2011 L4 – 2.0L (CSX)	3100006	3100124	3600005	3600117	28 MM THD	RR	N/A	
1995-1997 L4 – 2.2L (CL Coupe)	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
1998-1999 L4 – 2.3L (CL Coupe)	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
2004-2014 L4 – 2.4L (TSX)	See Dealer		N/A		N/A	N/A	N/A	
5 Cylinder								
1992-1998 L5 – 2.5L	3100006	3100124	3600005	3600117	28 MM THD	RF	N/A	
6 Cylinder								
1987-1990 V6 – 2.5, 2.7L	See Dealer				N/A	N/A	N/A	
1991-1999 V6 – 3.2L	3100006	3100124	3600005	3600117	28 MM THD	LC	N/A	
1993-2005 V6 – 3.0, 3.2L (NSX)	See Dealer		N/A		N/A	N/A	N/A	
1997-1999 V6 – 3.0L (CL coupe)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
1999-2007 V6 – 3.2 (TL, CL coupe)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
2007-2010 V6 – 3.5L (TL Type S)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
1996-2004 V6 – 3.5 (RL)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
2005-2012 V6 – 3.5L (RL)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
2009-2014 V6 – 3.7L (TL)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
LIGHT TRUCK								
2007-2010 L4 – 2.3L (RDX)	3100006	3100124	3600005	3600117	28 MM THD		N/A	
1998-2000 V6 – 3.5L	See Dealer		N/A		N/A	N/A	N/A	
2001-2006 V6 – 3.5L (MDX)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
2007-2013 V6 – 3.7L (MDX)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
AMC – EXCEPT JEEP AND EAGLE								
AUTOMOTIVE								
4 Cylinder								
1984 L4 – 2.5L	3100065		3600006		1-3/4"	LR	6 o'clock	
1980-1983 L4 – 2.5L (Pontiac engine)	3100054		3600006		1-5/8"	LR	12 o'clock	
6 Cylinder								
1964-1987 L6 – 4.2L, 199, 232, 258 cu. in.	3100072		3600006		2"	LR	12 o'clock	
8 Cylinder								
1956-1962 V8 – 327 cu. in.	3100039		3600006		1-1/2"	LC or RC	6 o'clock	
1966-1980 V8 – 290, 304, 343, 360, 390, 401 cu. in.	3100039		3600006		1-1/2"	LR	5 o'clock	
AUDI								
AUTOMOTIVE								
4 Cylinder								
1973-1988 L4 – 1471cc	3100034		3600016		36.5 MM	2ND RS	6 o'clock	2
1986-1990 L4 – 1.8, 2.0L	3100034		3600016		36.5 MM	RC	6 o'clock	2
1997-2005 L4 – 1.8L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
2005-2019 L4 – 2.0L, Turbo FSI & TSI	See Dealer		N/A		N/A	N/A	N/A	
2010-2019 L4 – 2.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
5 Cylinder								
1980-1986 L5 – 2.0L, 2.1L & 2.2L, Except, Turbo	3100034		3600016		36.5 MM	RC	6 o'clock	2
1987-1995 L5 – 2.2, 2.3L	3100035		3600016		36.5 MM	RF or 2ND RF	3 o'clock	2
2012-2014 L5 – 2.5L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
1992-1995 V6 – 2.8L	See Dealer		N/A		N/A	N/A	N/A	
1996-2001 V6 – 2.8L	See Dealer		N/A		N/A	N/A	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
AUDI – Continued								
AUTOMOTIVE								
6 Cylinder								
2000-2004 V6 – 2.7L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
2002-2005 V6 – 3.0L	See Dealer		N/A		N/A	N/A	N/A	
2009-2019 V6 – 3.0L, Supercharged	See Dealer		N/A		N/A	N/A	N/A	
2010-2019 V6 – 3.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
2004-2009 V6 – 3.2L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2005-2011 V6 – 3.2L, Conventional	See Dealer		N/A		N/A	N/A	N/A	
2006-2010 V6 – 3.6L	See Dealer		N/A		N/A	N/A	N/A	
8 Cylinder								
2012-2019 V8 – 4.0, Supercharged	See Dealer		N/A		N/A	N/A	N/A	
1992-2019 V8 – 3.6, 3.7, 4.2L	See Dealer		N/A		N/A	N/A	N/A	
10 Cylinder								
2006-2019 V10 – 5.2L	See Dealer		N/A		N/A	N/A	N/A	
12 Cylinder								
2006-2009 W12 – 6.0L	See Dealer		N/A		N/A	N/A	N/A	
2011-2019 W12 – 6.3L	See Dealer		N/A		N/A	N/A	N/A	
BMW								
AUTOMOTIVE								
4 Cylinder								
1969-1990 L4 – SOHC	3100030		3600006		36 MM	RC	6 o'clock	
6 Cylinder								
1978-1983 L6 – ALL (Except 528E)	3100030		3600006		36 MM	LF	3 o'clock	
1982-1991 L6 – 2.5, 2.7, 3.5L	3100063		3600006		44 MM	2ND RF	4 o'clock	
1992-1999 24-Valve L6 – 2.0, 2.5, 2.8, 3.0, 3.2L	See Dealer		N/A		N/A	N/A	N/A	
1998-2005 24-Valve L6 – 2.8, 3.0, 3.2, 3.4L (Aluminum Block)	See Dealer		N/A		N/A	N/A	N/A	
2006-2019 L6 – 3.0L	See Dealer		N/A		N/A	N/A	N/A	
2007-2010 L6 – 3.0L (N54) Twin, Turbo	See Dealer		N/A		N/A	N/A	N/A	
2010-2019 L6 – 3.0L (N55), Turbo	See Dealer		N/A		N/A	N/A	N/A	
2010-2019 L6 – 3.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
8 Cylinder								
1993-2009 V8 – 3.0, 4.0, 4.4, 4.6, 4.8, 5.0L	See Dealer		N/A		N/A	N/A	N/A	
2008-2012 V8 – 4.0L (S65B40)	See Dealer		N/A		N/A	N/A	N/A	
2009-2019 V8 – 4.4L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
10 Cylinder								
2006-2009 V10 – 5.0L (S65B50)	See Dealer		N/A		N/A	N/A	N/A	
12 Cylinder								
1988-2003 V12 – 5.0, 5.4L	See Dealer		N/A		N/A	N/A	N/A	
2004-2008 V12 – 6.0L	See Dealer		N/A		N/A	N/A	N/A	
2010-2015 V12 – 6.0L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
BUICK								
AUTOMOTIVE								
4 Cylinder								
1982-1986 L4 – 1.8L	3100014		3600006		34 MM	LF	12 o'clock	
1983-1989 L4 – 1.8, 2.0L OHC (Brazil engine)	3100015		3600006		34 MM	2ND LF	3 o'clock	2
1983-1984 L4 – 2.0L	3100014		3600006		34 MM	LF	12 o'clock	
1985-1986 L4 – 2.0L	3100062		3600006		42 MM	LF	4 o'clock	
1987-1996 L4 – 2.0L, 2.2L, Transverse	3100081		3600006		42 MM	LF	9 o'clock	
2012-2015 L4 – 2.0L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
1987-1993 L4 – 2.3L, Quad IV	3100093		3600006		3/4" NPT	N/A	N/A	3
1994-1995 L4 – 2.3L, Quad IV Gen II	3100001		3600006		1/2" NPT	In water pump	N/A	
1996-1999 L4 – 2.4L (Twin Cam)	3100001		3600006		1/2" NPT	In water pump	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
BUICK – Continued								
AUTOMOTIVE								
4 Cylinder								
2011-2018 L4 – 2.4L, Ecotec	See Dealer		N/A		N/A	N/A	N/A	
1980-1992 L4 – 2.5L	3100076		3600006		1-5/8"	LF	12 o'clock	
6 Cylinder								
1980-1986 V6 – 2.8L, Transverse Except Vin W	3100014		3600006		34 MM	RS	3 o'clock	7
1987-1989 V6 – 2.8L, Transverse Vin W	3100015		3600006		34 MM	CR	3 o'clock	2
1982-1988 V6 – 3.0L, Transverse	3100041		3600006		1-1/2"	LF	12 o'clock	1
2010-2011 V6 – 3.0L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
1989-2004 V6 – 3.1L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2
2005-2007 V6 – 3.1L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2002-2003 V6 – 3.4L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2
1978-1979 V6 – 196 cu. in.	3100039		3600006		1-1/2"	RR	12 o'clock	1
2005-2018 V6 – 3.6L, Transverse	3100110		3600082		Cartridge	LR	N/A	15
1988-2004 V6 – 3300, 3800, Transverse	3100041		3600006		1-1/2"	RF or LF	12 o'clock	15
2005 V6 – 3800, Transverse	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
2006-2009 V6 – 3800, Transverse	3100109	N/A	3600082	N/A	28 MM THD	CR	N/A	15
1975-1988 V6 – 3.8L (231 cu. in.), Conventional	3100039		3600006		1-1/2"	RR	12 o'clock	1
1984-1988 V6 – 3.8L (231 cu. in.), Transverse	3100041		3600006		1-1/2"	RF or LF	3 o'clock	
2009-2012 V6 – 3.9L, Transverse	3100109	N/A	3600082	N/A	28 MM THD	CR	N/A	15
1980-1985 V6 – 4.1L (252 cu. in.)	3100039		3600006		1-1/2"	RR	12 o'clock	
1982-1985 V6 – 4.3L (265 cu. in.), Diesel (Conv)	3100039		3600006		1-1/2"	LF or RF	12 o'clock	1
1982-1985 V6 – 4.3L (263 cu. in.), Diesel, Transverse	3100039		3600006		1-1/2"	RR or RF	12 o'clock	
1968-1976 L6 – 250 cu. in.	3100054		3600006		1-5/8"	LR	12 o'clock	
8 Cylinder								
1975-1976 V8 – 260 cu. in.	3100039		3600006		1-1/2"	RF	6 o'clock	
1981-1982 V8 – 4.4L (267 cu. in.)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1977-1982 V8 – 4.3 L (265 cu. in.) 4.9L (301 cu. in.)	3100070		3600006		1-15/16"	LC	11 o'clock	
2006-2012 V8 – 4.6L (North Star)	See Dealer		3600082		N/A	N/A	N/A	
1977-1995 V8 – 5.0L (305 cu. in.) (Chevrolet engine)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1981-1991 V8 – 5.0L (307 cu. in.) (Oldsmobile engine)	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
2008-2009 V8 – 5.3L, Transverse	3100109	N/A	3600082	N/A	28 MM THD	RF	N/A	15
1968-1981 V8 – 5.7L (350 cu. in.) (Buick engine)	3100039		3600006		1-1/2"	LF or RR	12 o'clock	1
1980-1985 V8 – 5.7L (350 cu. in.), Diesel	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1991-1996 V8 – 5.0L (305 cu. in.), 5.7L (350 cu. in.) (Chevrolet engine)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	12
1975-1977 V8 – 400 cu. in.	3100070		3600006		49 MM	LF	12 o'clock	
1977-1979 V8 – 403 cu. in.	3100039		3600006		1-1/2"	RF	12 o'clock	
1967-1971 V8 – 430, 455 cu. in.	3100039		3600006		1-1/2"	RC	12 o'clock	
LIGHT TRUCK								
6 Cylinder								
2002-2004 V6 – 3.4L	3100015		3600006		34 MM	CR	3 o'clock	2
2005-2006 V6 – 3.4L	See Dealer		N/A		N/A	N/A	N/A	
2004 V6 – 3.5L	3100005		3600005		28 MM THD	CR	N/A	
2004 V6 – 3.6L, Transverse	3100106		3600100		Cartridge	LR	N/A	
2005-2018 V6 – 3.6L, Transverse	3100110		3600082		Cartridge	LR	N/A	15
2001-2003 V6 – 3800, Transverse	3100041		3600006		1-1/2"	RF or LF	12 o'clock	
2003-2004 L6 – 4.2L, Conventional	3100005		3600100		28 MM THD	LF	N/A	
2005 L6 – 4.2L, Conventional	3100109	3100127	3600082	3600119	28 MM THD	LF	N/A	15
2006-2007 L6 – 4.2L, Conventional	3100109	N/A	3600082	3600119	28 MM THD	LF	N/A	15
2003-2004 V8 – 5.3L, Conventional	3100005		3600100		28 MM THD	LR	N/A	
2005 V8 – 5.3L, Conventional	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
BUICK – Continued								
LIGHT TRUCK								
8 Cylinder								
2006-2007 V8 – 5.3L, Conventional	3100109	N/A	3600082	N/A	28 MM THD	LR	N/A	15
CADILLAC								
AUTOMOTIVE								
4 Cylinder								
1982-1984 L4 – 1.8, 2.0L	3100014		3600006		34 MM	LF	12 o'clock	
1985-1988 L4 – 2.0L	3100062		3600006		42 MM	LF	4 o'clock	
6 Cylinder								
1985-1986 V6 – 2.8L, Transverse	3100014		3600006		34 MM	RS	3 o'clock	7
2005-2007 V6 2.8L, Conventional	3100110		3600082		Cartridge	RR	N/A	15
1997-2001 V6 – 3.0L	3100006	3100124	3600005	3600117	28 MM	N/A	N/A	
2010-2014 V6 – 3.0L	3100110		3600082		Cartridge	RR	N/A	15
2002-2004 V6 – 3.2L	3100006	3100124	3600005	3600117	28 MM	LR	N/A	
2005-2006 V6 – 3.2L	See Dealer		N/A		N/A	N/A	N/A	
1986-1988 V6 – 2.8L, Transverse Vin W	3100015		3600006		34 MM	CR	3 o'clock	2
2004 V6 – 3.6L, Conventional	3100106		3600100		Cartridge	RR	N/A	
2005-2018 V6 – 3.6L, Conventional	3100110		3600082		Cartridge	RR	N/A	15
1981-1982 V6 – 4.1L (252 cu. in.)	3100039		3600006		1-1/2"	RR	12 o'clock	1
1984-1985 V6 – 4.3L (262 cu. in.), Diesel	3100039		3600006		1-1/2"	RF or RR	12 o'clock	
8 Cylinder								
1982-1994 V8 – 4.1, 4.5, 4.9L, Transverse	See Dealer		N/A		Clamp-On	N/A	N/A	
1993-2012 V8 – 4.6L, Transverse (Northstar)	See Dealer		N/A		Clamp-On	N/A	N/A	
2005 V8 – 4.4L, Conventional (Northstar SC)	3100109	3100127	3600082	3600119	28 MM THD	RC	N/A	15
2006-2009 V8 – 4.4L, Conventional (Northstar SC)	3100109	N/A	3600082	N/A	28 MM THD	RC	N/A	15
2004 V8 – 4.6L, Conventional (Northstar)	3100005		3600100		28 MM THD	RC	N/A	
2005 V8 – 4.6L, Conventional (Northstar)	3100109	3100127	3600082	3600119	28 MM THD	RC	N/A	15
2006-2010 V8 – 4.6L, Conventional (Northstar)	3100109	N/A	3600082	N/A	28 MM THD	RC	N/A	15
1986-1992 V8 – 5.0L (307 cu. in.)	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1990-1996 V8 – 5.0, 5.7L (Chevrolet engine)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1976-1981 V8 – 5.7L (350 cu. in.)	3100039		3600006		1-1/2"	LC or RC	12 o'clock	
1978-1985 V8 – 5.7L (350 cu. in.), Diesel	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
2004 V8 – 5.7L (CTS-V)	3100005		3600100		28 MM THD	LF	N/A	
2005 V8 – 5.7L (CTS-V)	3100109	3100127	3600082	3600119	28 MM THD	LF	N/A	15
2006-2007 V8 – 5.7L (CTS-V)	3100109	N/A	3600082	N/A	28 MM THD	LF	N/A	15
1980-1984 V8 – 6.0L (368 cu. in.)	3100065		3600006		1-3/4"	RC	12 o'clock	
2009-2018 V8 – 6.2L (LSA) (CTS-V)	3100109	N/A	3600082	N/A	28 MM THD	LF	N/A	15
1977-1979 V8 – 425 cu. in.	3100065		3600006		1-3/4"	RC	11 o'clock	
1968-1976 V8 – 472, 500 cu. in.	3100065		3600006		1-3/4"	LF or RC	12 o'clock	
LIGHT TRUCK								
6 Cylinder								
2010-2012 V6 – 2.8L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
2010-2014 V6 – 3.0L	3100110		3600082		Cartridge	RR	N/A	15
2004 V6 – 3.6L, Conventional	3100106		3600100		Cartridge	RR	N/A	
2005-2009 V6 – 3.6L, Conventional	3100110		3600082		Cartridge	RR	N/A	15
8 Cylinder								
2004 V8 – 4.6L, Conventional (Northstar)	3100005		3600100		28 MM THD	RC	N/A	
2005 V8 – 4.6L, Conventional (Northstar)	3100109	3100127	3600082	3600119	28 MM THD	RC	N/A	15
2006-2009 V8 – 4.6L, Conventional (Northstar)	3100109	N/A	3600082	N/A	28 MM THD	RC	N/A	15
2001-2004 V8 – 5.3, 6.0L	3100005		3600100		28 MM THD	LR	N/A	
2005 V8 – 5.3, 6.0L	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15
2006 V8 – 5.3, 6.0L	3100109	N/A	3600082	N/A	28 MM THD	LR	N/A	15
2009-2013 V8 – 6.0L, Hybrid	3100109	N/A	3600082	N/A	28 MM THD	LF	N/A	
2007-2018 V8 – 6.2L	3100109	3100127	3600082	3600119	28 MM THD	LF	N/A	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
CHEVROLET (Also see Geo)								
AUTOMOTIVE								
3 Cylinder								
1986-1988 L3 – 1.0L	3400002		3600002		Clamp-On	N/A	N/A	
1998-2000 L3 – 1.0L	3400002		3600002		Clamp-On	N/A	N/A	
4 Cylinder								
1998-1999 L4 – 1.3L (Suzuki engine)	3400004		3600020		Clamp-On	N/A	N/A	
1976-1987 L4 – 1.4, 1.6L, Conventional	3100014		3600006		34 MM	RF	6 o'clock	
2011-2018 L4 – 1.4L	See Dealer		N/A		Oil Pan Heater	N/A	N/A	
1985-1988 L4 – 1.5L, Transverse Spectrum	3100018		3600006		35 MM	CR	12 o'clock	
2004-2018 L4 – 1.6L (Aveo)	See Dealer		N/A		Oil Pan Heater	N/A	N/A	
1985-1988 L4 – 1.6L, Transverse Nova	3100049		3600006		40 MM	CF	6 or 12 o'clock	
1982-1984 L4 – 1.8L, Transverse	3100014		3600006		34 MM	LF	12 o'clock	
1982-1987 L4 – 1.8L, Diesel	3100018		3600006		35 MM	RR	12 o'clock	
1998-2002 L4 – 1.8L (Toyota Eng.) (Prizm)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
2011-2018 L4 – 1.8L	See Dealer		N/A		Oil Pan Heater	N/A	N/A	
1983-1984 L4 – 2.0L (122 cu. in.), Transverse	See Dealer		N/A		34 MM	LF	12 o'clock	
1985-1986 L4 – 2.0L (122 cu. in.), Transverse	3100062		3600006		42 MM	LF	4 o'clock	
2004-2009 L4 – 2.0L, Transverse (Optra)	See Dealer		N/A		N/A	N/A	N/A	
1987-2002 L4 – 2.0, 2.2L, Transverse	3100081		3600006		42 MM	LF	9 o'clock	
2005-2008 L4 – 2.0L (Ecotec Supercharged), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
2009-2010 L4 – 2.0L (Ecotec, Turbo), Transverse	See Dealer		N/A		N/A	N/A	N/A	
2002-2004 L4 – 2.2L (Ecotec), Transverse	3400019		3600100		Clamp-On	RR	N/A	
2005-2010 L4 – 2.2L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
1990-1993 L4 – 2.3L Quad IV	3100093		3600003		3/4" NPT	N/A	N/A	3
1994-1995 L4 – 2.3L Quad IV Gen II	3100001		3600002		1/2" NPT	N/A	N/A	
1996-2002 L4 – 2.4L (Twin Cam)	3100001		3600002		1/2" NPT	N/A	N/A	
2006-2015 L4 – 2.4L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
1980-1992 L4 – 2.5L, Transverse	3100076		3600006		1-5/8"	LF	12 o'clock	
1977-1986 L4 – 2.5L, Conventional	3100076		3600006		1-5/8"	LR	6 or 12 o'clock	
1962-1970 L4 – 153 cu. in.	3100054		3600006		1-5/8"	LF	12 o'clock	
6 Cylinder								
2004 -2006 L6 – 2.5L, Transverse (Epica)	See Dealer		N/A		N/A	N/A	N/A	
1980-1988 V6 – 2.8L, Transverse Except Vin W	3100014		3600006		34 MM	RS	3 o'clock	7
1985-1989 V6 – 2.8L, Transverse Vin W	3100015		3600006		34 MM	CR or CF	3 o'clock	2
1982-1989 V6 – 2.8L, Conventional	3100014		3600006		34 MM	RFF IN BLOCK	3 o'clock	
1990-1996 V6 – 3.1, 3.4L, Conventional	3100015		3600006		34 MM	RC	3 o'clock	2
1990-2003 V6 – 3.1L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2
1992-1997 V6 – 3.4L, DOHC, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2, 5
2000-2004 V6 – 3.4L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2, 5
2005 V6 – 3.4L, Transverse (Equinox)	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
2006-2009 V6 – 3.4L, Transverse (Equinox)	3100109	N/A	3600082	N/A	28 MM THD	LC	N/A	15
2004 V6 – 3.5L, Transverse	3100005		3600100		28 MM THD	CR	N/A	
2005 V6 – 3.5L, Transverse	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
2006-2012 V6 – 3.5L, Transverse	3100109	N/A	3600082	N/A	28 MM THD	CR	N/A	15
2008-2018 V6 – 3.6L, Transverse	3100110		3600082		Cartridge	LR	N/A	15
2010-2015 V6 – 3.6L, Conventional	3100110		3600082		Cartridge	RR	N/A	15
1980-1984 V6 – 3.8L, (229 cu. in.)	3100057	3100126	3600006	3600116	1-5/8"	LR	6 o'clock	
1978-1988 V6 – 3.8L, (231 cu. in.)	3100039		3600006		1-1/2"	RR	12 o'clock	1
1998-2004 V6 – 3.8L, Transverse	3100041		3600006		1-1/2"	RF or LF	12 o'clock	
2005 V6 – 3.8L, Transverse	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
2006-2011 V6 – 3.8L, Transverse	3100109	N/A	3600082	N/A	28 MM THD	CR	N/A	15
1986-1988 V6 – 3.8L (231 cu. in.), Transverse	3100041		3600006		1-1/2"	LF	3 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
CHEVROLET (Also see Geo) – Continued								
AUTOMOTIVE								
6 Cylinder								
1995-2002 V6 – 3.8L (Camaro)	3100041		3600006		1-1/2"	RR		
2006-2012 V6 – 3.9L, Transverse	3100109		3600082	3600119	28 MM THD	CR	N/A	15
1982-1985 V6 – 4.3L (263 cu. in.), Diesel, Conventional	3100039		3600006		1-1/2"	LR or RF	12 o'clock	
1983-1985 V6 – 4.3L (263 cu. in.), Diesel, Transverse	3100039		3600006		1-1/2"	RF or RR	12 o'clock	
1985-1988 V6 – 4.3L (263 cu. in.)	3100057	3100126	3600006	3600116	1-5/8"	LR	6 o'clock	
1955-1973 L6 – ALL	3100054		3600006		1-5/8"	LF	12 o'clock	
1978-1979 V6 – 200 cu. in.	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1974-1979 L6 – 250 cu. in.	3100054		3600006		1-5/8"	LR	12 o'clock	
8 Cylinder								
1994-1996 V8 – 4.3L	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1958-1997 V8 – 5.0, 5.7, 262, 267, 283, 305, 307, 327, 350, 400 (265 HP)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1986-1990 V8 – 5.0L, 307 cu. in. Vin Y	3100039		3600006		1-1/2"	LF or RF	12 o'clock	9, 12
2006-2010 V8 – 5.3L, Transverse	3100109		3600082	3600119	28 MM THD	RF	N/A	15
1980-1985 V8 – 5.7L, (350 cu. in.), Diesel	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1998-2002 V8 – 5.7L, (350 cu. In.) (Camaro)	3100005		3600100		28 MM THD	LR	N/A	
1996-2004 V8 – 5.7L (350 cu. In.) (Corvette, inc Z06)	3100005		3600005		28 MM THD	LR	N/A	
2005 V8 – 6.0L LS2 (C6 Corvette)	3100109	3100127	3600082	3600119	28 MM THD	LF	N/A	15
2006-2007 V8 – 6.0L LS2 (C6 Corvette)	3100109	N/A	3600082	N/A	28 MM THD	LF	N/A	15
2008-2018 V8 – 6.2L LS3 (C6 Corvette, Camaro)	3100109	N/A	3600082	N/A	28 MM THD	LF	N/A	15
2008-2018 V8 – 6.2L LS9 (C6 Corvette ZR1, Camaro ZL1)	3100109	N/A	3600082	N/A	28 MM THD	LF	N/A	15
2006-2015 V8 – 7.0L LS7 (C6 Corvette Z06)	3100109		3600082		28 MM THD	LF	N/A	15
1966-1971 V8 – 396 cu. in.	3100065		3600006		1-3/4"	RC or RF	12 o'clock	
1970-1977 V8 – 400 (300 HP) (402 cu. in.)	3100065		3600006		1-3/4"	LF	3 o'clock	
1969 V8 – 427 cu. in.	3100065		3600006		1-3/4"	LF or RC	12 o'clock	
1970-1977 V8 – 454 cu. in.	3100065		3600006		1-3/4"	RC	6 o'clock	
CHEVROLET & GMC (ALSO SEE GEO)								
LIGHT TRUCK – INCLUDES VANS/MPV								
4 Cylinder								
1988-1995 L4 – 1.6 (Suzuki engine)	3400003		3600002		Clamp-On	N/A	N/A	
1977-1982 L4 – 1.8L	3100018		3600006		35 MM	LF	12 o'clock	
1982-1986 L4 – 1.9L (119 cu. in.)	3100018		3600006		35 MM	LF	12 o'clock	
1983-1985 L4 – 2.0L (122 cu. in.)	3100014		3600006		34 MM	LF	12 o'clock	
2009 -2010 L4 – 2.0L (Ecotec, Turbo), Transverse	See Dealer		N/A		N/A	N/A	N/A	
1994-2003 L4 – 2.2L	3100081		3600006		42 MM	LR	9 o'clock	
1981-1985 L4 – 2.2L, Diesel	3100068		3600006		1-3/4"	ANY LS	6 o'clock	
2006-2018 L4 2.4L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
1985-1994 L4 – 2.5L (151 cu. in.)	3100076		3600006		1-5/8"	LR	6 or 12 o'clock	
1962-1964 L4 – (153 cu. in.)	3100054		3600006		1-5/8"	LF	12 o'clock	
2004 L4 – 2.8L, Conventional	3100005		3600100		28 MM THD	LC	N/A	
2005 L4 – 2.8L, Conventional	3100109	3100127	3600082	3600119	28 MM THD	LC	N/A	15
2006 L4 – 2.8L, Conventional	3100109	N/A	3600082	N/A	28 MM THD	LC	N/A	15
2007-2012 L4 – 2.9L, Conventional	See Dealer		N/A		N/A	N/A	N/A	
5 Cylinder								
2004 L5 – 3.5L, Conventional	3100005		3600100		28 MM THD	LC	N/A	
2005 L5 – 3.5L, Conventional	3100109	3100127	3600082	3600119	28 MM THD	LC	N/A	15
2006 L5 – 3.5L, Conventional	3100109	N/A	3600082	N/A	28 MM THD	LC	N/A	15
2007-2012 L5 – 3.7L, Conventional	See Dealer		N/A		N/A	N/A	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
CHEVROLET & GMC (ALSO SEE GEO) – Continued								
LIGHT TRUCK – INCLUDES VANS/MPV								
6 Cylinder								
1984-1995 Forward/Tiltmaster (W7H, W7T)	3100089		3600006		1" NPT	RS (2 required)	N/A	
1987-1995 Forward/Tiltmaster (W4, W5, W6, W7)	3100089		3600006		1" NPT	LS	N/A	
1982-1993 V6 – 2.8L (173 cu. in.)	3100014		3600006		34 MM	RFF IN BLOCK	3 o'clock	6
2010-2012 V6 – 3.0L	See Dealer		N/A		N/A	N/A	N/A	
1990-1996 V6 – 3.1L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2
1990-2004 V6 – 3.4L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2
2005 V6 – 3.4L, Transverse (Equinox)	3100109	3100127	3600082	3600119	28 MM THD	LC	N/A	15
2006-2009 V6 – 3.4L, Transverse (Equinox)	3100109	N/A	3600082	N/A	28 MM THD	LC	N/A	15
2009-2018 V6 – 3.6L (Acadia, Terrain)	3100110		3600082		Cartridge	RR	N/A	15
1980-1985 V6 – 3.8L (229 cu. in.) (El Camino)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1993-1996 V6 – 3.8L (231 cu. in.), Transverse	3100041		3600006		1-1/2"	LF	3 o'clock	
1978-1988 V6 – 3.8L (231 cu. in.) (El Camino)	3100039		3600006		1-1/2"	RR	12 o'clock	1
2002-2004 L6 – 4.2L	3100005		3600100		28 MM THD	LF	N/A	1
2005 L6 – 4.2L	3100109	3100127	3600082	3600119	28 MM THD	LF	N/A	15
2006-2007 L6 – 4.2L	3100109	N/A	3600082	N/A	28 MM THD	LF	N/A	15
1985-2005 V6 – 4.3L (263 cu. in.)	3100054		3600006		1-5/8"	LR	12 o'clock	
2006-2018 V6 – 4.3L	3100109	N/A	3600082	N/A	28 MM THD	LC	N/A	15
1974-1989 L6 – 250, 292 cu. in.	3100054		3600006		1-5/8"	LR	12 o'clock	
1981-1985 L6 – 4.1L (250 cu. in.)	3100054		3600006		1-5/8"	LR	12 o'clock	
1960-1973 L6 – 194, 230, 248, 250, 261, 292 cu. in.	3100054		3600006		1-5/8"	LF	12 o'clock	
1960-1974 V6 – 305, 351, 401, 478 cu. in.	3100065		3600006		1-3/4"	LF or RF	12 o'clock	
8 Cylinder								
1955-1972 V8 – 265, 283, 305, 307, 327, 350, 400 (265 HP)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1958-1965 V8 – 348, 409 cu. in.	3100065		3600006		1-3/4"	LR	12 o'clock	
1972-1989 V8 – 366, 396, 402, 427 cu. in.	3100065		3600006		1-3/4"	RC	12 o'clock	
1978-1984 V8 – 5.7L (350 cu. in.) Diesel	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1981-2000 V8 – 6.2, 6.5L, Diesel (600W heater)	3100057	3100126	3600006	3600116	1-5/8"	LC	6 or 12 o'clock	
1981-2000 V8 – 6.2, 6.5L, Diesel (1000W heater)	3100059		3600006		1-5/8"	LC	6 or 12 o'clock	
2001-2006 V8 – 6.6L, Diesel (Duramax)	3100130		3600006		40MM	RF	12 o'clock	
2007-2015 V8 – 6.6L, Diesel (Duramax)	3100130		3600006		40MM	RF	12 o'clock	
1966-1989 V8 – 7.4L (454 cu. in.)	3100065		3600006		1-3/4"	RC	6 o'clock	
1990-2004 V8 – 5.7, 6.0, 7.4L (366, 350, 454 cu. in.)	3100057	3100126	3600006	3600116	1-5/8"	LC or RC	6 o'clock	
1973-2002 V8 – 5.0, 5.7, 6.6L (305, 350, 400 cu. in.)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	10
1999-2004 V8 – 4.8, 5.3, 6.0, 8.1L (Gen 3)	3100005		3600100		28 MM THD	LR	N/A	
2005 V8 – 4.8, 5.3, 6.0, 6.2, 8.1L (Gen 3 & 4)	3100109	3100127	3600082	3600119	28 MM THD	LR or LF	N/A	15
2006-2018 V8 – 4.8, 5.3, 6.0, 6.2, 8.1L (Gen 3 & 4)	3100109	N/A	3600082	N/A	28 MM THD	LR or LF	N/A	15
1965-1985 V8 – DH 637	3100065		3600006		1-3/4"	LF or RC	12 o'clock	
CHRYSLER								
AUTOMOTIVE								
4 Cylinder								
1979-1984 L4 – 1.4L	3100016		3600006		35 MM	2ND LR	12 o'clock	
1985-1996 L4 – 1.5L (G15B), Transverse	3100024		3600006		35 MM	LR or 2ND LR	9 o'clock	
1971-1973 L4 – 1.5L, Conventional	3100055	3100125	3600006	3600116	1-5/8"	2ND LS	12 o'clock	
1978-1990 L4 – 1.6L, Transverse (Colt/Champ)	3100016		3600006		35 MM	2ND LR	12 o'clock	
1989-1990 L4 – 1.6L (4G61) DOHC, Turbo	3100024		3600006		35 MM	2ND RR	4 o'clock	
1971-1983 L4 – 1.6L, Conventional	3100016		3600006		35 MM	LC	12 o'clock	
1978-1983 L4 – 1.7L (Omni/Horizon)	3100034		3600016		36.5 MM	RR	6 o'clock	2
1989-1996 L4 – 1.8L (4G93)	3100020		3600006		35 MM	RF	3 o'clock	
2006-2011 L4 – 1.8L, Transverse (Caliber)	3100111		3600083		Cartridge	LF	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
CHRYSLER – Continued								
AUTOMOTIVE								
4 Cylinder								
1974-1982 L4 – 2.0L, Conventional	3100049		3600006		40 MM	RF	6 o'clock	
1984-1993 L4 – 2.0L (4G63), Transverse	3100024		3600006		35 MM	LR	3 o'clock	
1994-2005 L4 – 2.0L, Transverse (Neon/Stratus)	3100024		3600006		35 MM	LR	3 o'clock	
2006-2012 L4 – 2.0L, Transverse (Caliber)	3100111		3600083		Cartridge	LF	N/A	
1992-2006 L4 – 2.4L (4G64), Transverse	3100075		3600004		35 MM	LR	3 o'clock	13
2003-2007 L4 – 2.4L, Turbo	3100075		3600004		35 MM	LR	3 o'clock	13
2008-2009 L4 – 2.4L, Turbo	3100111		3600083		Cartridge	LF	N/A	
2006-2014 L4 – 2.4L, Transverse (Caliber, Sebring)	3100111		3600083		Cartridge	LF	N/A	
1981-1997 L4 – 2.2L, 2.5L Including, Turbo (600W)	3100055	3100125	3600006	3600116	1-5/8"	CR	6 or 12 o'clock	
1981-1997 L4 – 2.2L, 2.5L Including, Turbo (400W)	3100053	3100125	3600006		1-5/8"	CR	6 or 12 o'clock	
1981-1989 L4 – 2.6L, Transverse	3100049	3100125	3600006		40 MM	RR	9 o'clock	
1978-1985 L4 – 2.6L, Conventional	3100049	3100125	3600006		40 MM	RR	9 o'clock	
1985-1989 L4 – 2.6L, Conventional, Turbo	See Dealer	3100125	N/A		N/A	N/A	N/A	
6 Cylinder		3100125						
1995-2000 V6 – 2.5L (6G73), Transverse	3100055	3100125	3600006	3600116	1-5/8"	CR	3 o'clock	
2002-2009 V6 – 2.7L, Transverse	See Dealer	3100125	N/A		Cartridge	LR	N/A	
1987-1998 V6 – 3.0L (6G72), Transverse	3100055	3100125	3600006	3600116	1-5/8"	LR	12 o'clock	
2001-2005 V6 – 3.0L	3100055	3100125	3600006	3600116	1-5/8"	RR	12 o'clock	
1988-1992 V6 – 3.0L (Monaco)	3100031	3100125	3600006		36 MM	RRF IN HEAD	9 o'clock	
2004-2008 V6 – 3.2L, Conventional (Crossfire, SRT6)	3100105		N/A		38 MM THD	Lower Hose Fitting	N/A	
1990-1998 V6 – 3.3L, Transverse	3100055	3100125	3600006	3600116	1-5/8"	LR	12-1 o'clock	
1993-1997 V6 – 3.3L, Conventional	3100055	3100125	3600006	3600116	1-5/8"	RR	12-1 o'clock	
1993-1997 V6 – 3.5L, Conventional	3100055	3100125	3600006	3600116	1-5/8"	RR	12 o'clock	
1998-2011 V6 – 2.7, 3.2, 3.5L, Conventional	See Dealer		N/A		Cartridge	RR	N/A	
2011-2019 V6 – 3.6L, Pentastar	3100128		3600120		Cartridge	RR	N/A	
1961-1983 L6 – 170, 198, 225 cu. in. (Slant)	3100055	3100125	3600006	3600116	1-5/8"	LF	12 o'clock	
8 Cylinder								
1966-1969 V8 – 273, 318, 340 cu. in.	3100055	3100125	3600006	3600116	1-5/8"	LC or RC	12 o'clock	
1966-1969 V8 – 383, 400, 413, 426, 440 cu. in.	3100055	3100125	3600006	3600116	1-5/8"	LC or RC	12 o'clock	
1970-1989 V8 – 318, 340, 360, 383, 400, 440 cu. in.	3100055	3100125	3600006	3600116	1-5/8"	LC or RC	12 o'clock	
2004-2019 V8 – 5.7L, Hemi	3100131		3600121		Cartridge	LR	N/A	
2005-2010 V8 – 6.1L, Hemi	See Dealer		N/A		Cartridge	LR	N/A	
2011-2014 V8 – 6.4L, Hemi	See Dealer		N/A		Cartridge	LR	N/A	
10 Cylinder								
1996-2010 V10 – 8.0, 8.2, 8.3, 8.4L	See Dealer		N/A		N/A	N/A	N/A	
DAEWOO								
AUTOMOTIVE								
4 Cylinder								
1999-2002 L4 – 1.6L (Lanos)	3100015		3600006		34 MM	LF	3 o'clock	
1999-2002 L4 – 2.0L (Nubira)	3100015		3600006		34 MM	LF	3 o'clock	
1999-2002 L4 – 2.2L (Leganza)	3100015		3600006		34 MM	LF	3 o'clock	
DODGE								
LIGHT & MEDIUM DUTY TRUCKS & VANS								
4 Cylinder								
1992-1996 L4 – 1.8L (4G93) (Vista/Summit)	3100020		3600006		35 MM	RF	3 o'clock	
1979-1982 L4 – 2.0L	3100049		3600006		40 MM	RF	6 o'clock	
1983-1989 L4 – 2.0L (4G63B) (122 cu. in.)	3100024		3600006		35 MM	RR	3 o'clock	
1984-1991 L4 – 2.0L (Vista)	3100024		3600006		35 MM	2ND LR	9 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
DODGE – Continued								
LIGHT & MEDIUM DUTY TRUCKS & VANS								
4 Cylinder								
1982-1987 L4 – 2.2L, Transverse	3100055	3100125	3600006	3600116	1-5/8"	CR	6 o'clock	
1982-1987 L4 – 2.2L, Transverse	3100053		3600006		1-5/8"	CR	6 o'clock	
1987-1997 L4 – 2.2L, 2.5L, Conventional	3100055	3100125	3600006	3600116	1-5/8"	RC	6 o'clock	
1983-1985 L4 – 2.3L (4D55) (140 cu. in.), Diesel	See Dealer		3600006		40 MM	LR	9 o'clock	
1987-1990 L4 – 2.4L (G64B), Conventional	3100024		3600006		35 MM	RR	3 o'clock	
1992-1996 L4 – 2.4L (4G64) (Vista)	3100024		3600006		35 MM	LR/2ND LR	3 o'clock	13
1986-1995 L4 – 2.5L, Transverse	3100055	3100125	3600006	3600116	1-5/8"	CR	6 o'clock	
1986-1995 L4 – 2.5L, Transverse	3100053		3600006		1-5/8"	CR	6 o'clock	
1986-1990 L4 – 2.6L, Transverse	3100049		3600006		40 MM	RR	9 o'clock	
1979-1990 L4 – 2.6L (G54B), Conventional	See Dealer		3600006		40 MM	RF	6 o'clock	
5 Cylinder								
2004-2006 L5 – 2.7L, Diesel	3100105		NA		38 MM THD	LF	N/A	
6 Cylinder								
1987-2007 V6 – 3.0, 3.3L, 3.8L, Transverse	3100055	3100125	3600006	3600116	1-5/8"	LR	12 o'clock	
1987-1996 V6 – 3.0L (6G72), Transverse	3100055	3100125	3600006	3600116	1-5/8"	RR	9 o'clock	1
2007-2011 V6 – 3.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
2011-2014 V6 – 3.6L Pentastar	3100128		3600120		Cartridge	RR	N/A	
2002-2008 V6 – 3.7L	3100104		3600006		35 MM	2ND RR	N/A	
1987-2003 V6 – 3.9L (239 cu. in.)	3100055	3100125	3600006	3600116	1-5/8"	RR	6 o'clock	
2007-2010 V6 – 4.0L	See Dealer		N/A		N/A	N/A	N/A	
1960-1988 L6 – 170, 198, 225 cu. in.	3100055	3100125	3600006	3600116	1-5/8"	LF	12 o'clock	
1989-2001 L6 – 5.9L Cummins, Diesel	3500030		3600008		58 MM	RC	6 o'clock	
2002-2006 L6 – 5.9L Cummins, Diesel	3500022		3600008		3/4" NPT	Rear of oil cooler	N/A	
2007-2019 L6 – 6.7L Cummins, Diesel	3500022		3600008		3/4" NPT	Rear of oil cooler	N/A	
8 Cylinder								
2000-2012 V8 – 4.7L	3100104		3600006		35 MM	RR	N/A	
1962-1996 V8 – ALL (Except Dakota)	3100055	3100125	3600006	3600116	1-5/8"	LC or RC	12 o'clock	
1991-1999 V8 – 5.2L (Dakota)	3100055	3100125	3600006	3600116	1-5/8"	RR	6 o'clock	
1996-2001 V8 – 5.2L (Ram) & (Durango)	3100055	3100125	3600006	3600116	1-5/8"	RR	6 o'clock	
2003-2014 V8 – 5.7L, Hemi	3100131		3600121		Cartridge	LR	N/A	
1993-2002 V8 – 5.9L	3100055	3100125	3600006	3600116	1-5/8"	RR	6 o'clock	
10 Cylinder								
1994-2008 V10 – 8.0L	3100091		3600006		1-5/8"	RR	11 o'clock	
Note: Some Chrysler corp. engines have an .060 oversized frost plug hole. You may have to obtain an oversized O-ring 6027513 from a Chrysler dealer.								
EAGLE								
AUTOMOTIVE								
4 Cylinder								
1989-1996 L4 – 1.5L (G15G), Transverse	3100024		3600006		35 MM	2ND LR	9 o'clock	
1989-1990 L4 – 1.6L (4G61) DOHC ENG	3100024		3600006		35 MM	2ND RR	4 o'clock	
1992-1996 L4 – 1.8L (4G93)	3100020		3600006		35 MM	RF	3 o'clock	
1990-1996 L4 – 1.8L (4G37) (Talon)	3100024		3600006		35 MM	RF	12 o'clock	
1989-1998 L4 – 2.0L (4G63), Turbo (Talon)	See Dealer		N/A		N/A	N/A	N/A	
1995-1997 L4 – 2.0L (Talon) (Chrysler engine)	3100024		3600006		35 MM	LR	3 o'clock	
1988-1989 L4 – 2.2L	3100003		3600001		1" NPT	RF	6 o'clock	
1992-1996 L4 – 2.4L (4G64), Transverse (Summit)	3100024		3600006		35 MM	LR/2ND LR	3 o'clock	13
1992-1996 L4 – 2.4L (4G64), Transverse	3100024		3600006		35 MM	RF	3 o'clock	
1988-1989 L4 – 2.5L (150 cu. in.)	3100065		3600006		1-3/4"	LF	12 o'clock	
6 Cylinder								
1988-1993 V6 – 3.0L	3100031		3600006		36 MM	RRF IN HEAD	9 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
EAGLE – Continued								
AUTOMOTIVE								
6 Cylinder								
1993-1997 V6 – 3.3L, Conventional	3100055	3100125	3600006	3600116	1-5/8"	LF	12-1 o'clock	
1993-1997 V6 – 3.5L, Conventional	3100055	3100125	3600006	3600116	1-5/8"	RR	12 o'clock	
FIAT								
AUTOMOTIVE								
2011-2019 L4 – 1.4L	See Dealer		N/A		N/A	N/A	N/A	
2012 L4 – 1.4L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
FORD/MERCURY/LINCOLN								
AUTOMOTIVE								
4 Cylinder								
1988-1997 L4 – 1.3L	3100016		3600006		35 MM	2ND LR	12 o'clock	
1971-1981 L4 – 1.3, 1.6L	3100057	3100126	3600006	3600116	1-5/8"	LF	12 o'clock	
1971-1973 L4 – 1.6L OHV	3100054		3600006		1-5/8"	LF	12 o'clock	
1978-1980 L4 – 1.6L, Transverse (Fiesta)	3100053		3600006		1-5/8"	LF	9 o'clock	
1981-1985 L4 – 1.6L (Escort)	3100053		3600006		1-5/8"	LF	9 o'clock	
1988-1996 L4 – 1.6L (Tracer)	3100016		3600006		35 MM	2ND RF	12 o'clock	
2010-2019 L4 – 1.6L	See Dealer		N/A		35 MM	RR	N/A	
1991-1996 L4 – 1.8L DOHC	3100021		3600006		35 MM	2ND RF	9 o'clock	
1986-1990 L4 – 1.9L, Transverse	3100053		3600006		1-5/8"	LF	9 o'clock	
1991-2004 L4 – 1.9L CVH, 2.0L SPI, Transverse	3100102		3600006		35 MM	LR	9 o'clock	
1971-1975 L4 – 2.0L OHV/OHC	3100039		3600006		1-1/2"	RF	12 o'clock	
1972-1975 L4 – 2.0L OHV	3100039		3600006		1-1/2"	RF	12 o'clock	
1984-1988 L4 – 2.0L, Diesel	3100016		3600006		35 MM	2ND LF	12 o'clock	
1993-1997 L4 – 2.0L (Mazda engine)	3100023		3600006		35 MM	RR	8 o'clock	
1995-2004 L4 – 2.0L (Zetec engine, inc SVT)*	3100018		3600006		35 MM	RR	3 o'clock	
2004-2011 L4 – 2.0L (Duratec), Transverse (Focus)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2012-2019 L4 – 2.0L (Focus)	See Dealer		N/A		N/A	N/A	N/A	
2010 - 2018 L4 - 2.5L, IVCT, Fusion	3100138		3600085		3/4" NPT	FR	N/A	17
2011-2015 L4 – 2.0L Ecoboost	See Dealer		N/A		N/A	N/A	N/A	
1989-1992 L4 – 2.2L	3100016		3600006		35 MM	2ND RF	12 o'clock	
1989-1992 L4 – 2.2L, Turbo	3100017		3600006		35 MM	2ND RF	12 o'clock	
1974-1995 L4 – 2.3L OHC, Conventional	3100039		3600006		1-1/2"	RR or RF	6 or 12 o'clock	
2004-2007 L4 – 2.3L (Duratec), Transverse	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2008-2018 L4 – 2.5L (Duratec), Transverse	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
1983-1995 L4 – 2.3, 2.5L HSC, Transverse	3100065		3600006		1-3/4"	LR & RR	6 o'clock	
2010-2018 L4-2.5L, IVCT, Fusion	3100138		3600085		3/4" NPT	FR	N/A	17
6 Cylinder								
1993-1997 V6 – 2.5L	3100028		3600006		35 MM	REAR	8 o'clock	
1995-2012 V6 – 2.5L, 3.0L 24-Valve (Duratec engine)**	3100002	3100121	3600001	3600118	3/4" NPT	RF	N/A	
2000-2005 V6 – 3.0L 24V, Conventional (Duratec engine)**	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
1972-1982 V6 – 2.6, 2.8L	3100036		3600003		1-1/2"	LFF or RFF	4 or 9 o'clock	
1987-1990 V6 – 2.9L (Scorpio)	3100042		3600006		1-1/2"	LFF	10 o'clock	
1986-2006 V6 – 3.0L 12-VALVE, Transverse (Except Villager and SHO)	3100039		3600006		1-1/2"	LF	6 o'clock	
1989-1994 V6 – 3.0, 3.2L (SHO)	See Dealer		N/A		N/A	N/A	N/A	
2007-2018 V6 – 3.5L, Transverse	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
2009-2018 V6 – 3.5L GTDI Ecoboost	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
2009-2018 V6 – 3.7L, Transverse	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
2010-2018 V6 – 3.7L, Conventional	See Dealer		N/A		Cartridge	N/A	N/A	
1988-1996 V6 – 3.8L, Transverse	3100040		3600006		1-1/2"	LF	12 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
FORD/MERCURY/LINCOLN – Continued								
AUTOMOTIVE								
6 Cylinder								
1982-2004 V6 – 3.8L, Conventional	3100040		3600006		1-1/2"	LR or RR	12 o'clock	
2005-2009 V6 – 4.0L, Conventional	3100040		3600006		38MM	RR	7 o'clock	
1964-1983 L6 – 170, 200, 250 cu. in.	3100065		3600006		1-3/4"	RC or RF	6 or 12 o'clock	
1966-1972 L6 – 240 cu. in.	3100054		3600006		1-5/8"	2ND RF	12 o'clock	
8 Cylinder								
1963-1965 V8 – 221, 260, 289 cu. in.	3100039		3600006		1-1/2"	LR	12 o'clock	
1980-1982 V8 - 4.2L, 255 cu. in.	3100039		3600006		1-1/2"	RR	6 o'clock	1
1996-1998 V8 – 3.4L (SHO)	3100002	3100121	3600001	3600118	3/4" NPT	N/A	N/A	5
2000-2005 V8 – 3.9L, Conventional	3100107		3600005		30 MM	LR	N/A	
1992-2010 V8 – 4.6L, Conventional	3100040		3600006		1-1/2"	LR	9 o'clock	
1999-2000 V8 – 4.6L, Conventional (Mustang)	3100040		3600006		1-1/2"	RR	9 o'clock	
2001-2009 V8 – 4.6L, Conventional (Mustang)	3100040		3600006		1-1/2"	LR	9 o'clock	
1995-2004 V8 – 4.6L 32V (Mustang)	3100040		3600006		1-1/2"	LR	9 o'clock	
2003-2004 V8 – 4.6L 32V (Merauder)	3100040		3600006		1-1/2"	LR	9 o'clock	
1995-2002 V8 – 4.6L, Transverse	3100040		3600006		1-1/2"	LF	9 o'clock	
2011-2018 V8 – 5.0L	3100002	3100121	3600001	3600118	3/4" NPT	LF	N/A	
2006-2011 V8 – 5.4L, Conventional (Mustang)	3100040		3600006		1-1/2"	LR	9 o'clock	
1966-1996 V8 – 289, 302 cu. in. (5.0L)	3100039		3600006		1-1/2"	LR or RR	6 o'clock	1
1974-1988 V8 – 5.8L, 351W, 351C, 351 cu. in.	3100039		3600006		1-1/2"	RR	12 o'clock	
1974-1985 V8 – 351M, 400 cu. in.	3100039		3600006		1-1/2"	LR	9 o'clock	
1968-1978 V8 – 429, 460 cu. in.	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1968-1973 V8 – 351, 400, 429, 460 cu. in.	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1963-1971 V8 – 352, 390, 410, 427, 428 cu. in.	3100065		3600006		1-3/4"	RF	6 or 12 o'clock	
LIGHT & MEDIUM DUTY TRUCKS & VANS – Includes Aerostar, Explorer & Windstar								
4 Cylinder								
1972-1982 L4 – 1.8L	3100071		3600006		50 MM	LC	12 o'clock	
1983-1988 L4 – 2.0L	3100039		3600006		1-1/2"	RR	6 o'clock	1
1979-1982 L4 – 1.8, 2.0L (Courier)	3100016		3600006		35 MM	LF	12 o'clock	
2002-2003 L4 – 2.0L (Zetec engine)	3100018		3600006		35 MM	RR	3 o'clock	
2010-2011 L4 – 2.0L (Transit)	See Dealer		N/A		N/A	N/A	N/A	
1981-1985 L4 – 2.2L, Diesel	3100010		3600005		30 MM	RR	6 o'clock	
1977-1994 L4 – 2.3L	3100039		3600006		1-1/2"	RR	6 o'clock	
1985-1988 L4 – 2.3L Mitsubishi, Diesel, Turbo	See Dealer		3600006		40 MM	LR	9 o'clock	
1995-1997 L4 – 2.3L	3100084		3600006		1-1/2"	LR	3 o'clock	
2001-2007 L4 – 2.3L, Conventional	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
2004-2012 L4 – 2.3L, Transverse	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
1998-2000 L4 – 2.5L	3100002		3600006		1-1/2"	LR	3 o'clock	
6 Cylinder								
2015-2020 V6 - 2.7L	See Dealer		N/A		N/A	N/A	N/A	
1983-1986 V6 – 2.8L	3100036		3600003		1-1/2"	RFF IN HEAD	10 o'clock	
1986-1992 V6 – 2.9L	3100042		3600006		1-1/2"	LFF IN HEAD	10 o'clock	
1993-1999 V6 – 3.0L, Transverse (Villager)	3100009		3600004		30 MM	LF	6 o'clock	
1986-2003 V6 – 3.0L, 12-Valve	3100039		3600006		1-1/2"	ANY	6 o'clock	
2001-2011 V6 – 3.0L 24-Valve (Duratec engine)**	3100002	3100121	3600001	3600118	3/4" NPT	RF	N/A	
1999-2000 V6 – 3.3L, Transverse (Villager)	3100009		3600004		30 MM	LF	6 o'clock	
2018-2020 V6 - 3.3L	See Dealer		N/A		N/A	N/A	N/A	
2011-2012 V6 – 3.5L, Conventional (Ecoboost)	See Dealer		N/A		Cartridge	N/A	N/A	
2015-2017 V6 - 3.5L	See Dealer		N/A		N/A	N/A	N/A	
2011-2014 V6 – 3.7L, Conventional	See Dealer		N/A		Cartridge	N/A	N/A	
1992-1997 V6 – 3.8L, Conventional	3100039		3600006		1-1/2"	LR or RR	12 o'clock	
1995-2003 V6 – 3.8L, Transverse	3100040		3600006		1-1/2"	LF	6 o'clock	
2004-2010 V6 – 3.9L, Transverse	3100040		3600006		1-1/2"	LF	6 o'clock	
1990-2010 V6 – 4.0L	3100039		3600006		1-1/2"	RF	6 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
FORD/MERCURY/LINCOLN – Continued								
LIGHT & MEDIUM DUTY TRUCKS & VANS – Includes Aerostar, Explorer & Windstar								
6 Cylinder								
1996-2003 V6 – 4.2L, Conventional	3100040		3600006		1-1/2"	LR	12 o'clock	
2004-2008 V6 – 4.2L, Transverse	3100040		3600006		1-1/2"	LF	6 o'clock	
1964-1974 L6 – 170, 200, 250 cu. in.	3100065		3600006		1-3/4"	RF	12 o'clock	
1965-1997 L6 – 3.9, 4.9L (240, 300 cu. in.)	3100054		3600006		1-5/8"	2ND RF	12 o'clock	9
1986-1988 L6 – 6.6, 7.8L, Diesel (See Heavy Duty Application Guide)								
8 Cylinder								
1960-1974 V8 – 292, 428 cu. in.	3100065		3600006		1-3/4"	LF or RF	12 o'clock	
1996-2010 V8 – 4.6L, 5.4L	See Dealer		N/A		N/A	N/A	N/A	
1966-1999 V8 – 5.0L (302 cu. in.), 289 cu. in.	3100039		3600006		1-1/2"	RR	6 o'clock	
2011-2014 V8 – 5.0L	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2015-2020 V8 - 5.0L	See Dealer		N/A		N/A	N/A	N/A	
2000-2014 V8 – 5.4L	See Dealer		N/A		N/A	N/A	N/A	
1966-1997 V8 – 5.8L (351 cu. in.), 400 cu. in.	3100039		3600006		1-1/2"	LR or RR	12 o'clock	
1966-1997 V8 – 7.5L (460 cu. in.), 429 cu. in.	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1960-1980 V8 – 330, 352, 361, 389, 391 cu. in.	3100065		3600006		1-3/4"	RF or 2ND RF	12 o'clock	
1960-1979 V8 – 360, 390 cu. in.	3100065		3600006		1-3/4"	LR or 2ND RF	12 o'clock	
1979-1986 V8 – 370 cu. in.	3100039		3600006		1-1/2"	LR or RR	12 o'clock	
1960-1981 V8 – 401, 475, 477, 534 cu. in.	3100065		3600006		1-3/4"	LR or 2ND RF	12 o'clock	
2003-2010 V8 – 6.0L, Diesel (VT365)	3500069		3600008		27MM	RR	N/A	
2010-2014 V8 – 6.2L	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2007-2010 V8 – 6.4L, Diesel	3500069		3600008		27MM	RR	N/A	
2011-2014 V8 – 6.7, 6.8L, Diesel	3500069		3600008		27MM	LR	N/A	
1983-1994 V8 – 6.9, 7.3L, Diesel	3100043		3600010		1-1/2"	RR	11 o'clock	
1995-2002 V8 – 7.3L (T444E)	3500043		3600008		3/4 NPT	oil filter	N/A	
10 Cylinder								
1998-2010 V10 – 6.8L	3100040		3600006		1-1/2"	LR or RR	12 o'clock	
GEO								
AUTOMOTIVE								
3 Cylinder								
1989-1997 L3 – 1.0L (Metro)	3400002		3600002		Clamp-On	N/A	N/A	
4 Cylinder								
1989-1999 L4 – 1.3L (Suzuki engine)	3400004		3600020		Clamp-On	N/A	N/A	
1989 L4 – 1.5L	3100018		3600006		35 MM	CR	12 o'clock	
1988-1997 L4 – 1.6L (Suzuki engine) (Tracker)	3400003		3600002		Clamp-On	N/A	N/A	
1990-1997 L4 – 1.6, 1.8L (Trans) (Isuzu engine) (Storm)	3100018		3600006		35 MM	2ND RR	12 o'clock	
1985-1997 L4 – 1.6, 1.8L (Trans) (Toyota engine) (Prizm)	3100049		3600006		40 MM	CF	12 o'clock	
GMC – SEE CHEVROLET LIGHT & MEDIUM TRUCKS								
HINO – SEE HEAVY DUTY APPLICATION GUIDE								
HONDA								
AUTOMOTIVE								
4 Cylinder								
2002-2004 L4 -1.0L	3100006	3100124	3600005	3600117	28 MM THD			
1973-1983 L4 – 1.2, 1.3L	3400005		3600002		Clamp-On	N/A	N/A	
1984-1992 L4 – 1.3, 1.5L	3400001		3600002		Clamp-On	N/A	N/A	
2003-2014 – 1.3L	3100006	3100124	3600005	3600117	28 MM THD			
1996-2000 L4 – 1.6L, Transverse 16-Valve	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
1999-2000 L4 – 1.6L DOHC (Civic SiR)	3100006	3100124	3600005	3600117	28 MM THD	RF	N/A	
1988-1995 L4 – 1.5L, 1.6L, Transverse 16-Valve only	3100006	3100124	3600005	3600117	28 MM THD	RF	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
HONDA – Continued								
AUTOMOTIVE								
4 Cylinder								
1976-1983 L4 – 1.5, 1.6L	3400006		3600002		Clamp-On	N/A	N/A	
2006-2019 L4 – 1.5L (Fit)	See Dealer		N/A		N/A	N/A	N/A	
2011-2019 L4 – 1.5L (CRZ)	See Dealer		N/A		N/A	N/A	N/A	
2001-2005 L4 – 1.7L, Transverse	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
2006-2011 L4 – 1.8L, Transverse	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
2012 L4 – 1.8L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
1979-1987 L4 – 1.6L, 1.8L, 2.0L, Transverse	3100023		3600006		35 MM	RS	9 o'clock	
1988-1989 L4 – 2.0L, Transverse (Accord)	3100023		3600006		35 MM	RS	9 o'clock	
2002-2005 L4 – 2.0L, Transverse (Civic SiR)	3100006	3100124	3600005	3600117	28 MM THD	RR	N/A	
2006-2011 L4 – 2.0L, Transverse (Civic SiR)	3100006	3100124	3600005	3600117	28 MM THD	RR	N/A	
1988-1991 L4 – 2.0L, 2.1L, Transverse (Prelude)	See Dealer		N/A		Clamp-On	N/A	N/A	
2000-2009 L4 – 2.0, 2.2L, Conventional (S2000)	3100006	3100124	3600005	3600117	28 MM THD	N/A	N/A	
1990-1997 L4 – 2.2L, Transverse (Accord)	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
1992-2001 L4 – 2.2L, 2.3L, Transverse (Prelude)	3100006	3100124	3600005	3600117	28 MM THD	RR	N/A	5
1998-2002 L4 – 2.3L (Accord)	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
2003-2015 L4 – 2.4L (Accord)	3100006	3100124	3600005	3600117	28 MM THD	RR	N/A	
2012 L4 – 2.4L, Transverse (Civic SIR)	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
1998-2007 V6 – 3.0L (Accord)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
2008-2019 V6 – 3.5L (Accord)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
1995-1997 V6 – 2.7L (Accord)	See Dealer		N/A		N/A	CR	N/A	
LIGHT TRUCK								
4 Cylinder								
1997-2001 L4 – 2.0L (CRV)	3100006	3100124	3600005	3600117	28 MM THD	RF	N/A	
1995-1998 L4 – 2.2L Odyssey, Transverse	3100006	3100124	3600005	3600117	28 MM THD	LR	N/A	
2002-2014 L4 – 2.4L (CRV)	3100006	3100124	3600005	3600117	28 MM THD	RR	N/A	
6 Cylinder								
1994-1999 V6 – 3.2L (Passport)	3100005		3600005		28 MM THD	LR	N/A	
1999-2014 V6 – 3.5L (Odyssey, Pilot, Ridgeline)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
HUMMER								
AUTOMOTIVE								
5 Cylinder								
2005-2006 L5 – 3.5L (H3)	3100109	3100127	3600082	3600119	28 MM THD	LC	N/A	15
2007-2009 L5 – 3.7L (H3)	3100109	3100127	3600082	3600119	28 MM THD	LC	N/A	15
8 Cylinder								
2007-2009 V8 – 5.3L	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15
2003-2004 V8 – 6.0L (H2)	3100005		3600005		28 MM THD	LR	N/A	
2005-2009 V8 – 6.0L (H2)	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15
HYUNDAI								
AUTOMOTIVE								
4 Cylinder								
1995-1997 L4 – 1.5L (Accent)	3100098	3100122	3600006	3600116	35 MM	2ND LR	9 o'clock	
1998-1999 L4 – 1.5L (Accent)	3100098	3100122	3600006	3600116	35 MM	CR	4 o'clock	
2000-2005 L4 – 1.5L (Accent)	3100098	3100122	3600006	3600116	35 MM	RF	9 o'clock	
2006-2011 L4 – 1.6L (Accent)	3100114		3600006		35MM	LF	12 o'clock	
2012-2019 L4 – 1.6L (Accent, Velostar)	See Dealer		N/A		Cartridge	RF	N/A	
1983-1987 L4 – 1.4, 1.6L, Conventional	3100098	3100122	3600006	3600116	35 MM	LC	12 o'clock	
1986-1995 L4 – 1.5L (Mitsubishi engine) (Excel)	3100098	3100122	3600006	3600116	35 MM	2ND LR	7 or 9 o'clock	
1993-1995 L4 – 1.5L (Alpha engine), Turbo	3100098	3100122	3600006	3600116	35 MM	2ND LR	7 or 8 o'clock	
1985-1986 L4 – 1.6L	3100098	3100122	3600006	3600116	35 MM	LC	7-11 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
HYUNDAI – Continued								
AUTOMOTIVE								
4 Cylinder								
2001-2005 L4 – 1.6L (Accent)	3100098	3100122	3600006	3600116	35 MM	2ND RR		
1992-1999 L4 – 1.6, 1.8L, Transverse	3100098	3100122	3600006	3600116	35 MM	2ND RR	3 o'clock	
2012-2019 L4 – 1.8L (Elantra)	See Dealer		N/A		Cartridge	RF	N/A	
1986-1988 L4 – 2.0L, Conventional	3100098	3100122	3600006	3600116	35 MM	2ND LF	9 o'clock	
2009-2012 L4 – 2.0L, Turbo, Conventional	3100111		3600083		Cartridge	RR	N/A	
2011-2019 L4 – 2.0L, Turbo, Transverse (Theta 2)	See Dealer		N/A		Cartridge	RF	N/A	
1989-2005 L4 – 2.0, 2.4L, Transverse	3100098	3100122	3600006	3600116	35 MM	2ND RR	9 o'clock	
1999 L4 – 2.4L, Transverse	3100098	3100122	3600006	3600116	35 MM	LR	N/A	
2006-2010 L4 – 2.4L, Transverse	3100111		3600083		Cartridge	LF	N/A	
2010-2014 L4 – 2.4L, Transverse (Theta 2)	See Dealer		N/A		Cartridge	LF	N/A	
6 Cylinder								
1989-1998 V6 – 3.0L	3100055	3100125	3600006	3600116	1-5/8"	RF	12 o'clock	
1999-2001 V6 – 2.5L	3100098	3100122	3600006	3600116	35 MM	LR	6 o'clock	
2002-2005 V6 – 2.7L (Sonata, Tiburon)	3100098	3100122	3600006	3600116	35 MM	LR	6 o'clock	
2001 V6 – 3.0L (XG300)	3100055	3100125	3600006	3600116	1-5/8"	LR	12 o'clock	
2006-2015 V6 – 3.3L	3100113		3600083		25 MM THD	CR	N/A	
2002-2005 V6 – 3.5L (XG350)	3100055	3100125	3600006	3600116	1-5/8"	LR	12 o'clock	
2009-2019 V6 – 3.8L	See Dealer		N/A		Cartridge	RR	N/A	
8 Cylinder								
2009-2011 V8 – 4.6L	See Dealer		N/A		Cartridge	RR	N/A	
LIGHT TRUCK								
4 Cylinder								
2011-2019 L4 – 2.0L, Transverse	See Dealer		N/A		Cartridge	LF	N/A	
2011-2019 L4 – 2.4L, Transverse	See Dealer		N/A		Cartridge	LF	N/A	
6 Cylinder								
2001-2005 V6 – 2.7L	3100098	3100122	3600006	3600116	35 MM	LR	6 o'clock	
2004-2005 V6 – 3.5L	3100055	3100125	3600006	3600116	1-5/8"	LR	12 o'clock	
2006-2008 V6 – 3.8L	3100113		3600083		25 MM THD	CR	N/A	
2010-2012 V6 – 3.5L, Transverse	See Dealer		N/A		Cartridge	RR	N/A	
2009-2015 V6 – 3.8L	See Dealer		N/A		Cartridge	RR	N/A	
INFINITI								
AUTOMOTIVE								
4 Cylinder								
1991-2002 L4 – 2.0L	3100007		3600005		30 MM THD	LR	N/A	
6 Cylinder								
1992-1997 V6 – 3.0L	3100009		3600004		30 MM	LF or LR	6 o'clock	
1996-2001 V6 – 3.0L (VQ30DE)	3100007		3600005		30 MM THD	RF	N/A	
2002-2013 V6 – 3.5L (VQ35DE), Transverse	3100007		3600005		30 MM	RF	N/A	
2003-2013 V6 – 3.5L (VQ35DE, VQ35HR) Conventional	3100007		3600005		30 MM	LR	N/A	16
2007-2014 V6 – 3.7L (VQ37VHR), Conventional	3100007		3600005		30 MM	LR	N/A	16
8 Cylinder								
1990-1996 V8 – 4.5L	3100007		3600005		30 MM THD	REAR	N/A	
1997-2000 V8 – 4.1L	3100007		3600005		30 MM THD	REAR	N/A	
2001-2009 V8 – 4.5L	3100007		3600005		30 MM THD	REAR	N/A	
2011-2013 V8 – 5.6L	3100007		3600005		30 MM THD	RF	N/A	
LIGHT TRUCK								
6 Cylinder								
1998-2000 V6 – 3.3L (VG33)	3100009		3600004		30 MM	LR	6 o'clock	
2001-2004 V6 – 3.5L	3100007		3600005		30 MM THD	LF	N/A	
2005-2008 V6 – 4.0L (VQ40DE)	See Dealer		N/A		N/A	N/A	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
INFINITY - Continued								
AUTOMOTIVE								
8 Cylinder								
2004 V8 – 4.5L	3100007		3600005		30 MM THD	REAR	N/A	
2004-2013 V8 – 5.6L (VK56DE)	3100007		3600005		30 MM THD	RF	N/A	
INTERNATIONAL BY NAVISTAR								
LIGHT & MEDIUM DUTY TRUCKS (ALSO SEE HEAVY DUTY APPLICATION GUIDE)								
4 Cylinder								
ALL L4 – 152, 196 cu. in.	3100054		3600006		1-5/8"	RC or RF	12 o'clock	
6 Cylinder								
ALL L6 – 225 cu. in.	3100054		3600006		1-5/8"	LF	12 o'clock	
ALL L6 – 220, 240, 241, 264 , 265 (Black Diamond)	3100054		3600006		1-5/8"	LF	12 o'clock	
ALL L6 – 3.2L (SD-33) (Nissan, Diesel)	3100023		3600006		35 MM	2ND or 4TH LS	12 o'clock	
8 Cylinder								
ALL V8 – 401, 461, 462, 478, 549, 550	3100038		3600006		1-1/2"	ANY LS or RS	12 o'clock	
ALL V8 – 401 cu. in. (AMC)	3100039		3600006		1-1/2"	RR	5 o'clock	
ALL V8 – 9.0L, 404, 446, 485, 537 cu. in.,	3100044		3600006		1-1/2"	ANY LS or RS	12 o'clock	
ALL V8 to 93 – 6.9, 7.3L, Diesel	3100043		3600010		1-1/2"	RR	11 o'clock	
1994-2002 V8 – 7.3L (T444E)	3500043		3600008		3/4" NPT	oil cooler	N/A	
ALL V8 – 266, 304, 345, 392, 400 cu. in.	3100054		3600006		1-5/8"	LF or RF	12 o'clock	
ISUZU								
AUTOMOTIVE								
4 Cylinder								
1992-1993 L4 – 1.6, 1.8L	3100018		3600006		35 MM	2ND RR	12 o'clock	
1985-1989 L4 – 1.5L, Transverse	3100018		3600006		35 MM	CR	12 o'clock	
1981-1988 L4 – 1.8L, 1.9L	3100018		3600006		35 MM	LF	12 o'clock	
1981-1985 L4 – 1.8L, Diesel	3100018		3600006		35 MM	RR	12 o'clock	
LIGHT & MEDIUM TRUCKS								
4 Cylinder								
1998-2002 L4 – 2.2L	3100081		3600006		42 MM	LR	9 o'clock	
1985-1995 L4 – 2.3L	3100019		3600006		35 MM	RF	3 o'clock	
1982-1989 L4 – 1.8L, 1.9L	3100018		3600006		35 MM	LF	12 o'clock	
1982-1986 L4 – 2.2L, Diesel	3100068		3600006		1-3/4"	LF	6 o'clock	
1988-1995 L4 – 2.6L	3100098	3100122	3600006	3600116	35 MM	RF	6 o'clock	
2007-2008 L4 – 2.9L, Conventional	See Dealer		N/A		N/A	N/A	N/A	15
ALL L4 – 4BD1 engine	3100089		3600006		1" NPT	LR	N/A	
5 Cylinder								
2007-2008 L5 – 3.7L, Conventional	See Dealer		N/A		N/A	N/A	N/A	15
6 Cylinder								
1989-1993 V6 – 2.8, 3.1L	3100014		3600006		34 MM	RFF IN BLOCK	3 o'clock	6
1992-2003 V6 – 3.2L	3100005		3600005		28 MM THD	LR	N/A	
1998-1999 V6 – 3.5L	3100005		3600005		28 MM THD	LR	N/A	
2003-2005 L6 – 4.2L	3100005		3600005		28 MM THD	LF	N/A	
2006-2007 L6 – 4.2L	See Dealer		N/A		N/A	N/A	N/A	15
ALL L6 – 5.8, 6.5L (6BD1, 6BG1 engine)	3100089		3600006		1" NPT	LR	N/A	
ALL L6 – 6SA1 Engine	3100089		3600006		1" NPT	RS	2 Required	
8 Cylinder								
2003-2005 V8 – 5.3L	3100005		3600100		28 MM THD	LR	N/A	
2006-2007 V8 – 5.3L	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15
JAGUAR								
AUTOMOTIVE								
6 Cylinder								
1952-1988 L6 – 2.5, 3.4, 3.6, 3.8, 4.2L	3100003		3600001		1" NPT	N/A	N/A	
2000-2007 V6 – 3.0L	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
JAGUAR - Continued								
AUTOMOTIVE								
6 Cylinder								
2002-2008 V6 – 2.5, 3.0L, Transverse	3100002	3100121	3600001	3600118	3/4" NPT	RF	N/A	
8 Cylinder								
1998-2009 V8 – 4.0, 4.2L	See Dealer		N/A		30 MM THD	LR	N/A	
2010-2015 V8 – 5.0L	See Dealer		N/A		30 MM THD	LR	N/A	
12 Cylinder								
1971-1997 V12 – 5.3, 6.0L	3100003		3600001		1" NPT	N/A	N/A	
JEEP								
AUTOMOTIVE& LIGHT TRUCK								
1984-1987 L4 – 2.1L, Diesel	3100003		3600001		1" NPT	RF	N/A	
2002-2004 L4 – 2.4L	3100024		3600006		35 MM	RR/2ND RR	3 o'clock	
2007-2019 L4 – 2.4L (Compass, Patriot)	3100111		3600083		Cartridge	LF	N/A	
1980-1983 L4 – 2.5L (Pontiac engine)	3100054		3600006		1-5/8"	LR	12 o'clock	
1984-2002 L4 – 2.5L	3100065		3600006		1-3/4"	LR	11 o'clock	
6 Cylinder								
1984-1987 V6 – 2.8L (Chevrolet engine)	3100014		3600006		34 MM	RFF IN BLOCK	3 o'clock	
2007-2009 V6 – 3.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
1963-1971 L6 – 230 cu. in. (OHC)	3100057	3100126	3600006	3600116	1-5/8"	ANY LS	6 o'clock	
2002-2012 V6 – 3.7L	3100104		3600006		35 MM	2ND RR	N/A	
1965-1971 L6 – 225 cu. in.	3100039		3600006		1-1/2"	LR	2 o'clock	
2011-2019 V6 – 3.6L Pentastar	3100128		3600120		N/A	RR	N/A	
2007-2010 V6 – 3.8L	See Dealer		N/A		N/A	N/A	N/A	
1987-2006 L6 – 4.0L	3100072		3600006		2"	LF	12 o'clock	
1968-1990 L6 – 4.2L	3100072		3600006		2"	LR	12 o'clock	
8 Cylinder								
1968-1971 V8 – 350 cu. in. (Buick engine)	3100039		3600006		1-1/2"	LF or RR	12 o'clock	
1972-1991 V8 – 304, 360, 401 cu. in.	3100039		3600006		1-1/2"	LR	5 o'clock	
1999-2007 V8 – 4.7L	3100104		3600006		35 MM	RR	N/A	
1993-1998 V8 – 5.2L	3100055	3100125	3600006	3600116	1-5/8"	RR	6 o'clock	
2005-2019 V8 – 5.7L, Hemi	3100131		3600121		Cartridge	LR	N/A	
1998 V8 – 5.9L	3100055	3100125	3600006	3600116	1-5/8"	RR	6 o'clock	
2006-2010 V8 – 6.1L, Hemi	See Dealer		N/A		Cartridge	LR	N/A	
2012-2019 V8 – 6.4L, Hemi	See Dealer		N/A		Cartridge	LR	N/A	
KIA								
AUTOMOTIVE								
4 Cylinder								
2001-2002 L4 – 1.5L (Rio)	See Dealer		3600006		35MM	N/A	N/A	
2003-2004 L4 – 1.6L (Rio)	See Dealer		3600006		35MM	N/A	N/A	
2006-2010 L4 – 1.6L (Rio)	3100114		3600006		35MM	LF	12 o'clock	
2009-2011 L4 – 1.6L (Soul)	See Dealer		N/A			N/A	N/A	
2012 L4 – 1.6L GDI (Rio, Soul)	See Dealer		N/A			N/A	N/A	
1998-2003 L4 – 1.8L (Sephia, Spectra)	3100016		3600006		35 MM	RF	12 o'clock	
1995-2003 L4 – 2.0L (Sportage)	3100016		3600006		35 MM	2ND LF	12 o'clock	
2004-2006 L4 – 2.0L (Spectra, Sportage)	3100098	3100122	3600006	3600116	35 MM	2ND RR	9 o'clock	
2009-2018 L4 – 2.0L (Forte)	3100111		3600083		Cartridge	LF	N/A	
2012-2019 L4 – 2.0L, Turbo	See Dealer		N/A		Cartridge	RR	N/A	
2002-2006 L4 – 2.4L, Transverse	3100098	3100122	3600006	3600116	35 MM	LR	6 o'clock	
2006-2018 L4 – 2.4L, Transverse (Optima, Forte)	3100111		3600083		Cartridge	LF	N/A	
2011-2014 L4 – 2.4L GDI	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
2001 V6 - 2.5L (Magentis)	3100098	3100122	3600006	3600116	35 MM	LR	6 o'clock	
2002-2005 V6 – 2.7L (MaGentis, Sportage)	3100098	3100122	3600006	3600116	35 MM	LR	6 o'clock	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
KIA – Continued								
AUTOMOTIVE								
2007-2009 V6 – 3.3L (Sorento)	3100113		3600083		25 MM THD	RR	N/A	
2002-2005 V6 – 3.5L (Sedona)	3100055	3100125	3600006	3600116	1-5/8"	LR	12 o'clock	
6 Cylinder								
2004-2006 V6 – 3.5L (Amanti)	3100055	3100125	3600006	3600116	1-5/8"	LR	12 o'clock	
2003-2005 V6 – 3.5L (Sorento)	3100055	3100125	3600006	3600116	1 5/8"	RR	12 o'clock	
2010-2015 V6 – 3.5L (Sorento, Sedona)	See Dealer		N/A		Cartridge	LR	N/A	
2006-2009 V6 – 3.8L (Sedona)	3100113		3600083		25 MM THD	CR	N/A	
2007-2009 V6 – 3.8L (Amanti)	3100113		3600083		25 MM THD	CR	N/A	
2009-2012 V6 – 3.8L (Borrego)	See Dealer		N/A		Cartridge	RR	N/A	
2010 V6 – 3.8L (Sedona)	3100111		3600083		Cartridge	LR	N/A	
8 Cylinder								
2009-2011 V8 – 4.6L (Borrego)	3100113		3600083		25 MM THD	LR	N/A	
LADA								
AUTOMOTIVE								
1978-1993 L4 – 1.5L	3100050		3600006		40 MM	LF	9 o'clock	
1981-1993 L4 – 1.6L	3100050		3600006		40 MM	LS	9 o'clock	
1987-1993 L4 – 1.3, 1.5L, Transverse	3100032		3600006		36 MM	LF	3 o'clock	
LAND ROVER								
AUTOMOTIVE								
4 Cylinder								
1958-UP L4 – 120.8 cu. in. Gas/Diesel (Land Rover)	3100070				1-15/16"	LC	6 o'clock	
2012-2019 L4 – 2.0L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
1958-UP L6 – 161, 182.7 cu. in.	3100003		3600001		1" NPT	N/A	N/A	
2002-2005 V6 – 2.5L	See Dealer		N/A		N/A	N/A	N/A	
2007-2012 L6 – 3.2L	See Dealer		N/A		N/A	N/A	N/A	
2004-2008 V6 – 4.0L	3100039		3600006		1-1/2"	RF	6 o'clock	
8 Cylinder								
1987-2004 V8 – 3.9, 4.0, 4.2, 4.6L	3100039		3600006		1-1/2"	LC	12 o'clock	
2003-2004 V8 – 4.4L (BMW Engine)	See Dealer		N/A		N/A	N/A	N/A	
2005-2009 V8 – 4.2L, 4.4L (Jaguar Engine)	See Dealer		N/A		30 MM THD	LR	N/A	
2010-2019 V8 – 5.0L	See Dealer		N/A		30 MM THD	LR	N/A	
LEXUS								
AUTOMOTIVE								
4 Cylinder								
2012 L4 – 1.8L	See Dealer		N/A		N/A	N/A	N/A	
2011-2012 L4 – 2.4L	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
2001-2005 L6 – 3.0L	See Dealer		N/A		N/A	N/A	N/A	
1989-1991 V6 – 2.5L	3100019		3600006		35 MM	CF	6 o'clock	
2006-2015 V6 – 2.5L (4GR-FSE), Conventional	See Dealer		N/A		N/A	LR	N/A	
1992-1994 V6 – 3.0L (3VZ-FE)	3100021		3600006		35 MM	LF	3 o'clock	
1994-2003 V6 – 3.0L (1MV-FE)	3100029		3600006		35 MM	RF	3 o'clock	
1992-1996 L6 – 3.0L, Conventional	See Dealer		N/A		N/A	N/A	N/A	
2004-2006 V6 – 3.3L (3MZ-FE)	3100029		3600006		35 MM	RF	3 o'clock	
2007-2019 V6 – 3.5L (2GR-FE), Transverse	See Dealer		N/A		N/A	N/A	N/A	
2006-2019 V6 – 3.5L (2GR-FSE), Conventional	See Dealer		N/A		N/A	LR	N/A	
8 Cylinder								
1989-2001 V8 – 4.0L	See Dealer		N/A		N/A	N/A	N/A	
2002-2007 V8 – 4.3L (3UZ-FE)	3100029		3600006		35 MM	RF	ANY	
2007-2019 V8 – 4.6L (1URFS, 1UR-FSE, 2UR-FSXE)	See Dealer		N/A		N/A	N/A	N/A	
2008-2014 V8 – 5.0L (2UR-FSE)	See Dealer		N/A		N/A	N/A	N/A	
2008-2014 V8 – 5.0L (2UR-GSE) (IS-F)	See Dealer		N/A		N/A	N/A	N/A	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
LEXUS – Continued								
LIGHT TRUCK								
6 Cylinder								
1999-2003 V6 – 3.0L	3100029		3600006		35 MM	RF	3 o'clock	
2004-2006 V6 – 3.3L (3MZ-FE)	3100029		3600006		35 MM	RF	3 o'clock	
2007-2019 V6 – 3.5L (2GR-FE), Transverse	See Dealer		N/A		N/A	LF	N/A	
8 Cylinder								
2010-2015 V8 – 4.6L	See Dealer		N/A		35 MM	RF	N/A	
1998-2009 V8 – 4.7L (2UZ-FE)	See Dealer		N/A		35 MM	RF	N/A	
2008-2019 V8 – 5.7L (2UR-FE)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
10 Cylinder								
2010-2013 V10 4.8L	See Dealer		N/A		N/A	N/A	N/A	
MAZDA								
AUTOMOTIVE								
Rotary								
1971-1996 R2 – ALL	See Dealer		3600002		Clamp-On	N/A	N/A	
2004-2011 R2 (RX8)	See Dealer		N/A		N/A	N/A	N/A	
4 Cylinder								
1971-1980 L4 – 1.2L, Conventional	3400008		3600001		Clamp-On	N/A	N/A	
1975-1980 L4 – 1.3L, 1.4L, 1.5L, Conventional	3100016		3600006		35 MM	LF	6 o'clock	
1981-1985 L4 – 1.5L, Transverse	3100019		3600006		35 MM	LF	3 o'clock	
1995-1998 L4 – 1.5L	3100023		3600006		35 MM	2ND RF	6 or 12 o'clock	
1986-1989 L4 – 1.6L, Transverse (Except, Turbo)	3100016		3600006		35 MM	2ND RF	12 o'clock	
1988-1989 L4 – 1.6L, Transverse DOHC, Turbo	3100017		3600006		35 MM	2ND RF	12 o'clock	
1990-1998 L4 – 1.6L, Transverse	3100023		3600006		35 MM	2ND RF	9 o'clock	
1989-1995 L4 – 1.6L DOHC, Conventional	3100016		3600006		35 MM	2ND LF	12 o'clock	
1970-1980 L4 – 1.6L – 1.8L, Conventional	3100071		3600006		50 MM	LC	12 o'clock	
1999 L4 – 1.6L DOHC, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2010-2012 L4 – 1.6L, Transverse (Mazda 2)	See Dealer		N/A		35MM	LR	N/A	
1990-1998 L4 – 1.8L SOHC	3100021		3600006		35 MM	2ND RF	6 o'clock	
1995-1999 L4 – 1.8L DOHC	3100016		3600006		35 MM	2ND RF	12 o'clock	
1999-2000 L4 – 1.8L DOHC, Transverse	See Dealer		N/A		N/A	N/A	N/A	
1985-1987 L4 – 2.0L, Diesel	3100016		3600006		35 MM	2ND RF	12 o'clock	
1983-1992 L4 – 2.0L (626), Transverse	3100016		3600006		35 MM	2ND RF	9 o'clock	
1979-1982 L4 – 2.0L, Conventional	3100071		3600006		50 MM	LC	12 o'clock	
1993-1998 L4 – 2.0L	3100023		3600006		35 MM	RR	8 o'clock	
1998-2003 L4 – 2.0L DOHC (626, Ptotege)	See Dealer		N/A		35 MM	RR	N/A	
2003-2004 L4 – 2.0L DOHC, Turbo	See Dealer		N/A		35 MM	RR	N/A	
2004-2011 L4 – 2.0L (Mazda 3)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2012-2019 L4 – 2.0L Skyactiv (Mazda 3)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2006-2007 L4 – 2.0L (Mazda MX5)	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
1988-1992 L4 – 2.2L (626), Transverse	3100016		3600006		35 MM	2ND RF	12 o'clock	
1988-1992 L4 – 2.2L, Turbo	3100017		3600006		35 MM	2ND RF	12 o'clock	
2003-2009 L4 – 2.3L (Mazda 3, Mazda 5, Mazda 6)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2006-2012 L4 – 2.3L, Turbo	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2009-2019 L4 – 2.5L (Mazda 3, Mazda 6)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
6 Cylinder								
1992-1999 V6 – 1.8L, 2.5L, Transverse	3100028		3600006		35 MM	REAR	8 o'clock	
1995-2002 V6 – 2.5L, 2.3L (Miller cycle engine)	3100028		3600006		35 MM	REAR	1 o'clock	
1988-1997 V6 – 3.0L	3100016		3600006		35 MM	RF	6 o'clock	
2003-2008 V6 – 3.0L (Mazda 6)	3100002	3100121	3600001	3600118	3/4" NPT	RF	N/A	
2009-2015 V6 – 3.7L (Mazda 6)	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
MAZDA – Continued								
LIGHT & MEDIUM DUTY TRUCKS								
4 Cylinder								
1971-1977 L4 – 1.6L	3100071		3600006		50 MM	LC	6 o'clock	
1977-1984 L4 – 1.8L, 2.0L	3100071		3600006		50 MM	LC	12 o'clock	
1985-1993 L4 – 2.0L, 2.2L GAS	3100016		3600006		35 MM	2ND LF	12 o'clock	
2001-2003 L4 – 2.0L (Tribute) (Ford engine)	3100018		3600006		35 MM	RR	3 o'clock	
2012-2019 L4 – 2.0L Skyactiv (CX-5)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
1982-1987 L4 – 2.2L, Diesel	3100023		3600006		35 MM	2ND RF	3 or 9 o'clock	
2001-2011 L4 – 2.3L (B2300)	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
1994 L4 – 2.3L (B2300) (Ford engine)	3100039		3600006		1-1/2"	RR	12 o'clock	
1995-1997 L4 – 2.3L (B2300) (Ford engine)	3100084		3600006		1-1/2"	LR	3 o'clock	
2004-2008 L4 – 2.3L (Tribute)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
2006-2010 L4 – 2.3L, Turbo (CX-7)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
1998-2000 L4 – 2.5L (Ford engine)	3100084		3600006		1.5 IN	LR	3 o'clock	
2009-2012 L4 – 2.5L (Tribute)	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	
1989-1995 L4 – 2.6L (B2600) & MPV (Mazda engine)	3100075		3600006		35 MM	2ND LF	9 o'clock	
1987-1988 L4 – 2.6L (B2600) (Mitsubishi engine)	3100049		3600006		40 MM	RF	6 o'clock	
6 Cylinder								
2000-2001 V6 – 2.5L (MPV) (Ford engine)	3100002	3100121	3600001	3600118	3/4" NPT	RF	N/A	
1989-1993 V6 – 3.0L	3100016		3600006		35 MM	RF	6 o'clock	
2001-2012 V6 – 3.0L (Tribute) (Ford engine)	3100002	3100121	3600001	3600118	3/4" NPT	RF	N/A	
2002-2011 V6 – 3.0L (MPV) (Ford engine)	3100002	3100121	3600001	3600118	3/4" NPT	RF	N/A	
1994-2011 V6 – 3.0L (B3000) (Ford engine)	3100039		3600006		1-1/2"	RR	12 o'clock	
2007-2008 V6 – 3.5L (CX-9)	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
2008-2018 V6 – 3.7L, Transverse	3100002	3100121	3600001	3600118	3/4" NPT	RR	N/A	
1991-2011 V6 – 4.0L (B4000) (Ford engine)	3100039		3600006		1-1/2"	RF	6 o'clock	
MERCEDES-BENZ								
AUTOMOTIVE								
4 Cylinder								
ALL 230	3100105		N/A		38 MM THD	See Instructions	N/A	
ALL, Diesel-Except 190D (1984 & newer)	3100105		N/A		38 MM THD	See Instructions	N/A	
1994-2004 L4 – 1.8L, 2.0L, 2.3L (M111)	3100105		N/A		38 MM THD	See Instructions	N/A	
2001-2007 L4 – 1.8L (M271)	8604967		N/A		3/4" NPT	RF	N/A	
2012 L4 – 1.8L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
2006-2012 L4 – 2.0L (B Class)	See Dealer		N/A		N/A	N/A	N/A	
5 Cylinder								
ALL Diesel	3100105		N/A		38 MM THD	See Instructions	N/A	
6 Cylinder								
1998-2005 V6 – 2.6L, 3.2L, 3.7L (M112)	3100105		N/A		38 MM THD	Lower hose casting	N/A	
2004-2011 V6 – 2.5L, 3.0L, 3.5L (M272)	3100105		N/A		38 MM THD	Lower hose casting	N/A	
2012-2019 V6 – 3.5L (M276)	See Dealer		N/A		N/A	N/A	N/A	
2007-2012 V6 – 3.2L, Diesel	3100105		N/A		38 MM THD	Lower hose casting	N/A	
8 Cylinder								
1971-2000 – ALL V8	3100105		N/A		38 MM THD	See Instructions	N/A	
2001-2007 V8 – 4.3L, 5.0L, 5.4L (M113)	3100105		N/A		38 MM THD	Lower hose casting	N/A	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
MERCEDES-BENZ – Continued								
AUTOMOTIVE								
8 Cylinder								
2006-2009 V8 – 4.7L, 5.0L (M273)	3100105		N/A		38 MM THD	Lower hose casting	N/A	
2011-2019 V8 – 4.7L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
2004-2009 V8 – 5.4L (M155) (SLR McLaren)	See Dealer		N/A		N/A	N/A	N/A	
2011-2019 V8 – 5.5L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
2006-2012 V8 – 6.2L AMG (M156)	See Dealer		N/A		N/A	N/A	N/A	
12 Cylinder								
2001-2005 V12 – 5.8L (M137)	3100105		N/A		38 MM THD	Lower hose casting	N/A	
2002-2015 V12 – 5.5L, 6.0L, Turbo (M275/285)	3100105		N/A		38 MM THD	Lower hose casting	N/A	
1989-2008 V12 – 7.3L AMG (M120)	See Dealer		N/A		N/A	N/A	N/A	
MINI								
AUTOMOTIVE								
4 Cylinder								
2003-2006 L4 – 1.6L	See Dealer		N/A		N/A	N/A	N/A	
2007-2019 L4 – 1.6L	See Dealer		N/A		N/A	N/A	N/A	
MITSUBISHI								
AUTOMOTIVE								
4 Cylinder								
1985-1993 L4 – 1.5L (Precis)	3100024		3600006		35 MM	2ND LR	9 o'clock	
1987-2001 L4 – 1.5L (G15B) (Mirage)	3100024		3600006		35 MM	2ND LR	9 o'clock	
1989-1992 L4 – 1.6L (4G61)	3100024		3600006		35 MM	2ND RR	4 o'clock	
1993-1999 L4 – 1.8L (4G93) (Expo/Mirage)	3100024		3600006		35 MM	RF	3 o'clock	
1989-1994 L4 – 1.8L (4G37) (Eclipse)	3100024		3600006		35 MM	RF	12o'clock	
1989-1996 L4 – 2.0L (4G63) (Eclipse)	See Dealer		N/A		N/A	N/A	N/A	
1989-1993 L4 – 2.0L (4G63) (Galant)	3100024		3600006		35 MM	LR	3 o'clock	
1995-1999 L4 – 2.0L (420A) (Eclipse non-Turbo)	3100024		3600006		35 MM	2ND LR	9 o'clock	
2004-2006 L4 – 2.0L (Lancer)	3100075		3600006		35 MM	2ND LF	3 o'clock	
2004-2006 L4 – 2.0L (Lancer Evo VIII)	See Dealer		N/A		N/A	N/A	N/A	
2007-2018 L4 – 2.0L (Lancer)	3100111		3600083		Cartridge	LF	N/A	
2008-2018 L4 – 2.0L, Turbo (Lancer Evo)	3100111		3600083		Cartridge	LF	N/A	
1982-1996 L4 – 2.4L (4G64) (Expo/Expo LRV)	3100024		3600006		35 MM	LR/2ND LR	3 o'clock	
1992 L4 – 2.4L (4G64) (Galant DOHC)	3100024		3600006		35 MM	RF	3 o'clock	
1994-1998 L4 – 2.4L (4G64) (Galant SOHC)	3100024		3600006		35 MM	RF	3 o'clock	
1999-2008 L4 – 2.4L (4G64) (Galant, 00 Eclipse)	3100020		3600006		35 MM	2ND LF	4 o'clock	
1996-1999 L4 – 2.4L (4G64) (Eclipse Spyder)	3100024		3600006		35 MM	RF	3 o'clock	
2004-2007 L4 – 2.4L (JT41/45 4 MIVEC) (Galant, Lancer)	3100075		3600006		35 MM	LF	3 o'clock	
2008-2018 L4 – 2.4L (Lancer GTS)	3100111		3600083		Cartridge	LF	N/A	
6 Cylinder								
1995-1996 V6 – 2.5L (6G73) (Galant)	3100055	3100125	3600006	3600116	1-5/8"	CR	3 o'clock	
1988-1996 V6 – 3.0L (6G72) (Except 3000GT)	3100055	3100125	3600006	3600116	1-5/8"	RF	9 o'clock	
1991-1996 V6 – 3.0L (6G72) (3000GT)	See Dealer		N/A		N/A	N/A	N/A	
1999-2003 V6 – 3.0L (6G72) (Galant, 00 Eclipse)	3100055	3100125	3600006	3600116	1-5/8"	LR	9 o'clock	
1997-2007 V6 – 3.5L (6G74) (Diamante)	3100055	3100125	3600006	3600116	1-5/8"	LR	6 o'clock	
2004-2012 V6 – 3.8L (Galant)	3100055	3100125	3600006	3600116	1-5/8"	LR	12o'clock	
LIGHT & MEDIUM DUTY TRUCKS								
4 Cylinder								
1983-1989 L4 – 2.0L (G63B)	3100024		3600006		35 MM	RR	3 o'clock	
1983-1986 L4 – 2.3L (4D55), Diesel	See Dealer		3600006		40 MM	LR	9 o'clock	
1987-1990 L4 – 2.4L (G64B)	3100024		3600006		35 MM	RR	3 o'clock	
1990-1996 L4 – 2.4L (4G64)	3100024		3600006		35 MM	RR	3 o'clock	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
MITSUBISHI – Continued								
LIGHT & MEDIUM DUTY TRUCKS								
4 Cylinder								
2003-2007 L4 – 2.4L (4G64) (Outlander)	3100024		3600006		35 MM	2ND LF	3 o'clock	
2008-2018 L4 – 2.4L (Outlander)	3100111		3600083		Cartridge	LF	N/A	
1997-2009 L4 – 2.4L (4G64) (Montero Sport)	3100024		3600006		35 MM	LF	3 o'clock	
1983-1989 L4 – 2.6L (G54B)	See Dealer		3600006		40 MM	RF	6 o'clock	
6 Cylinder								
1990-2005 V6 – 3.0L (6G72) (Truck,Montero)	3100055	3100125	3600006	3600116	1-5/8"	RR	9 o'clock	
2007-2008 V6 – 3.0L (6B31) (Outlander)	See Dealer		N/A		N/A	N/A	N/A	
1997-2005 V6 – 3.0L (6G72) (Montero Sport)	3100055	3100125	3600006	3600116	1-5/8"	RC	6 o'clock	
2008-2012 V6 – 3.5L (Outlander)	3100007		3600005		30MM	CR	N/A	
1999-2002 V6 – 3.5L (6G74) (Montero Sport)	3100055	3100125	3600006	3600116	1-5/8"	RC	6 o'clock	
1995-2002 V6 – 3.5L (6G74) (Montero)	3100055	3100125	3600006	3600116	1-5/8"	RR	12 o'clock	
2003-2011 V6 – 3.8L	3100055	3100125	3600006	3600116	1-5/8"	RR	12 o'clock	
NISSAN								
AUTOMOTIVE								
4 Cylinder								
1966-1980 L4 – 1.0, 1.2, 1.3, 1.4, 1.6L OHV (Conv)	3100016		3600006		35 MM	LF	12 o'clock	
1972-1982 L4 – 1.2, 1.4, 1.5L OHC, Conventional	3100016		3600006		35 MM	LF	12 o'clock	
1968-1973 L4 – 1.3, 1.6L OHC, Conventional	3100048		3600006		40 MM	LF or RR	12 o'clock	
1976-1981 L4 – 1.4L (A14), 1.5L (A15), Transverse	3100016		3600006		35 MM	LR	12 o'clock	
1982-1988 L4 – 1.5L (E15), 1.6L (E16), Transverse	3100074		3600004		30 MM	RR	8 o'clock	
1989-1990 L4 – 1.6L (GA16i), Transverse	3100074		3600004		30 MM	RF	9 o'clock	
1991-1992 L4 – 1.6L (E16), Transverse	3100074		3600004		30 MM	RR	8 o'clock	
1991-1999 L4 – 1.6L (GA16DE), Transverse	3100074		3600004		30 MM	RF	9 o'clock	
1987-1989 L4 – 1.6L (CA16DE), 1.8L (CA18DE) (Trans)	3100074		3600004		30 MM	LF	4 o'clock	
2011-2019 L4 – 1.6L (MR16DDT), Transverse	See Dealer		N/A		N/A	N/A	N/A	
1983-1987 L4 – 1.7L (CD17), Transverse, Diesel	3100074		3600004		30 MM	RR	8 o'clock	
1984-1988 L4 – 1.8L (CA18ET), Conventional, Turbo	3100074		3600004		30 MM	RC	3 o'clock	1
1973-1980 L4 – 1.8L (L18), 2.0L (L20), Conventional	3100048		3600006		40 MM	3RD RS	12 o'clock	
2002-2006 L4 – 1.8L (QG18DE)	See Dealer		N/A		N/A	N/A	N/A	
2007-2019 L4 – 1.8L (MR20DE)	See Dealer		N/A		N/A	N/A	N/A	
1986-1988 L4 – 2.0L (CA20), Conventional	3100074		3600004		30 MM	LR	6 o'clock	
1982-1989 L4 – 2.0L (CA20,CA20E), Transverse	3100074		3600004		30 MM	LF	7 o'clock	
1991-1999 L4 – 2.0L (GA20DE), Transverse	3100007		3600005		30 MM THD	RR	N/A	
1980-1985 L4 – 2.0L (Z20), 2.2L (Z22), Conventional	3100048		3600006		40 MM	LF	12 o'clock	
2007-2012 L4 – 2.0L (MR18DE)	See Dealer		N/A		N/A	N/A	N/A	
2002-2007 L4 – 2.5L (QR25DE), Transverse	3100007		3600005		30 MM THD	RF	N/A	
1989-2001 L4 – 2.4L (KA24E), Transverse	3100049		3600006		40 MM	LF	12 o'clock	
1989-1998 L4 – 2.4L (KA24E, KA24DE), Conventional	3100049		3600006		40 MM	LR	12 o'clock	
6 Cylinder								
1974-1980 L6 – 2.6L (L26)	3100016		3600006		35 MM	RF	12 o'clock	
1970-1985 L6 – 2.4L, 2.8L (L24, L28 E, ET)	3100016		3600006		35 MM	3RD RS	12 o'clock	
1981-1984 L6 – 2.8L (LD28), Diesel	3100016		3600006		35 MM	LR	12 o'clock	
1986-1993 V6 – 3.0L (VG30E, ET, DE), Conventional	3100009		3600004		30 MM	LR	6 o'clock	
1986-1994 V6 – 3.0L (VG30E, DE), Transverse	3100009		3600004		30 MM	LF	6 o'clock	
1995-2001 V6 – 3.0L (VQ30DE), Transverse	3100007		3600005		30 MM THD	RF	N/A	
2002-2014 V6 – 3.5L (VQ35DE), Transverse	3100007		3600005		30 MM THD	RF	N/A	
2004-2009 V6 – 3.5L (VQ35DE, VQ35HR), Conventional	3100007		3600005		30 MM THD	LR	N/A	16
2010-2014 V6 – 3.7L, Conventional	See Dealer		N/A		N/A	N/A	N/A	
2010-2014 V6 – 3.8L, Turbo (VR38DETT)	See Dealer		N/A		N/A	N/A	N/A	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
NISSAN – Continued								
LIGHT & MEDIUM DUTY TRUCKS								
4 Cylinder								
1970-1973 L4 – 1.6L OHC ENG	3100048		3600006		40 MM	LF or RR	12 o'clock	
1974-1980 L4 – 1.8L (L18), 2.0L (L20)	3100048		3600006		40 MM	3RD RS	12 o'clock	
1981-1989 L4 – 2.0L (Z20), 2.2L (Z22), 2.4L (Z24)	3100048		3600006		40 MM	LF	12 o'clock	
1990-1998 L4 – 2.4L (KA24E)	3100049		3600006		40 MM	LR	12 o'clock	
1981-1988 L4 – 2.2, 2.5L (SD25), Diesel	3100016		3600006		35 MM	LF	6 o'clock	
2005-2007 L4 – 2.5L (QR25DE), Conventional	3100007		3600005		30 MM THD	LF	N/A	
6 Cylinder								
1984-1995 V6 – 3.0L (VG30E, VG30i)	3100009		3600004		30 MM	LR	6 o'clock	
1993-1998 V6 – 3.0L (VG30E), Transverse (Quest)	3100009		3600004		30 MM	LF	6 o'clock	
1999-2000 V6 – 3.3L (VG33), Transverse (Quest)	3100009		3600004		30 MM	LF	6 o'clock	
1998-2004 V6 – 3.3L (VG33), Conventional	3100009		3600004		30 MM	LR	6 o'clock	
2001-2014 V6 – 3.5L (VQ35DE), Conventional	3100007		3600005		30MM THD	LF	N/A	
2005-2015 V6 – 4.0L (VQ40DE), Conventional	See Dealer		N/A		N/A	N/A	N/A	
8 Cylinder								
2004-2018 V8 – 5.6L (VK56DE)	3100007		3600005		30MM THD	RF	N/A	
2016-2019 V-8 5.0L Diesel	3500165		3600008		27mm		N/A	
OLDSMOBILE								
AUTOMOTIVE								
4 Cylinder								
1982-1989 L4 – 1.8, 2.0L OHC (Brazil engine)	3100015		3600006		34 MM	2ND LF	1 or 3 o'clock	
1982-1984 L4 – 1.8, 2.0L	3100014		3600006		34 MM	LF	12 o'clock	
1985-1986 L4 – 2.0L	3100062		3600006		42 MM	LF	4 o'clock	
1987-1992 L4 – 2.2L	3100081		3600006		42 MM	LF	9 o'clock	
1993-1996 L4 – 2.0L, 2.2L, Transverse	3100081		3600006		42 MM	LF	9 o'clock	
2002-2004 L4 – 2.2L (Ecotec), Transverse	3400019		3600100		Clamp-On	RR	N/A	
1987-1993 L4 – 2.3L Quad IV	3100093		3600023		3/4" NPT	N/A	N/A	3
1994-1995 L4 – 2.3L Quad IV Gen II	3100001		3600002		1/2" NPT	N/A	N/A	
1996-2001 L4 – 2.4L (Twin Cam)	3100001		3600002		3/4" NPT	N/A	N/A	
1980-1992 L4 – 2.5L, Transverse	3100076		3600006		1-5/8"	LF	12 o'clock	
1978-1981 L4 – 2.5L, Conventional	3100076		3600006		1-5/8"	LR	12 o'clock	
6 Cylinder								
1980-1986 V6 – 2.8L, Transverse	3100014		3600006		34 MM	RS	3 o'clock	7
1987-1989 V6 – 2.8L, Transverse (Vin W)	3100015		3600006		34 MM	CR	3 o'clock	2
1982-1988 V6 – 3.0L, Transverse	3100041		3600006		1-1/2"	LF	12 o'clock	
1989-1999 V6 – 3.1L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2
1992-1997 V6 – 3.4L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2, 5
1999-2004 V6 – 3.4L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2, 5
1999-2002 V6 – 3.5L DOHC, Transverse	See Dealer		N/A		Clamp-On	N/A	N/A	
1989-1998 V6 – 3300, 3800, Transverse	3100041		3600006		1-1/2"	RF or LF	12 o'clock	
1975-1988 V6 – 3.8L (231 cu. in.), Conventional	3100039		3600006		1-1/2"	RR	12 o'clock	1
1984-1988 V6 – 3.8L (231 cu. in.), Transverse	3100041		3600006		1-1/2"	LF	3 o'clock	
1981-1984 V6 – 4.1L (252 cu. in.), Conventional	3100039		3600006		1-1/2"	RR	12 o'clock	1
1983-1985 V6 – 4.3L, Diesel, Transverse	3100039		3600006		1-1/2"	RF or RR	12 o'clock	
1982-1985 V6 – 4.3L, Diesel, Conventional	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1991-1996 V6 – 4.3L	3100057	3100126	3600006	3600116	1-5/8"	LR	6 o'clock	
1968-1976 L6 – 250 cu. in.	3100054		3600006		1-5/8"	LF or LR	6 or 12 o'clock	
2006-2014 V6 – 4.3L	3100109	3100127	3600082	3600119	28 MM THD	LC	N/A	15
8 Cylinder								
1979-1985 V8 – 260 cu. in., Diesel	3100039		3600006		1-1/2"	LR	12 o'clock	
1975-1982 V8 – 260 cu. in. GAS	3100039		3600006		1-1/2"	RF	6 o'clock	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
OLDSMOBILE								
AUTOMOTIVE								
8 Cylinder								
1997-2003 V8 – 4.0L (Aurora)	See Dealer		N/A		Clamp-On	N/A	N/A	
1980-1981 V8 – 4.3L (265 cu. in.)	3100070		3600006		1-15/16"	LC	11 o'clock	1
1981-1982 V8 – 4.4L (267 cu. in.)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1980-1990 V8 – 5.0L (307 cu. in.)	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1979 V8 – 301 cu. in.	3100070		3600006		1-15/16"	LC	6 or 12 o'clock	
1977-1992 V8 – 305, 350 cu. in. (Chevrolet engine)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1964-1967 V8 – 330 cu. in.	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
1968-1981 V8 – 350, 455 (Except Delmont) (Olds eng)	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
ALL V8 – 350 (Delmont)	3100039		3600006		1-1/2"	RC	12 o'clock	
1967-1976 V8 – 400 cu. in.	3100039		3600006		1-1/2"	LF or RC	12 o'clock	
1975 V8 – 400 cu. in. (Vista Cruiser)	3100070		3600006		1-15/16"	LF	6 o'clock	
1977-1979 V8 – 403 cu. in.	3100039		3600006		1-1/2"	RF	12 o'clock	
1978-1985 V8 – 350 cu. in., Diesel	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
LIGHT & MEDIUM DUTY TRUCKS								
2004 L6 – 4.2L	3100005		3600100		28MM THD	LF	N/A	
1991-1996 V6 – 4.3L (Bravada)	3100054		3600006		1-5/8"	LR	12 o'clock	
PONTIAC								
AUTOMOTIVE								
3 Cylinder								
1985-1999 L3 – 1.0L	3400002		3600002		Clamp-On	N/A	N/A	
4 Cylinder								
1987-1999 L4 – 1.3L (Suzuki engine)	3400004		3600020		Clamp-On	N/A	N/A	
1985-1987 L4 – 1.5L, Transverse	3100018		3600006		35 MM	CR	12 o'clock	
1981-1988 L4 – 1.6L OHV, Conventional	3100014		3600006		34 MM	RF	6 o'clock	
2004-2009 L4 – 1.6L (Wave)	3100008		3600003		36 MM	LF	N/A	
1988-1998 L4 – (Suzuki engine) (Sunrunner)	3400003		3600002		Clamp-On	N/A	N/A	
1988-1993 L4 – 1.6L, Transverse (Lemans)	3100015		3600006		34 MM	LF	3 o'clock	2
1982-1984 L4 – 1.8L, 2.0L, OHV	3100014		3600006		34 MM	LF	12 o'clock	
1982-1987 L4 – 1.8L, Diesel	3100018		3600006		35 MM	RR	12 o'clock	
1982-1994 L4 – 1.8L, 2.0L OHC (Brazil engine)	3100015		3600006		34 MM	2ND LF	3 o'clock	2
2002-2009 L4 – 1.8L (1ZZFE), Transverse (Vibe)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
2007-2009 L4 – 2.0L (Ecotec, Turbo), Conventional	See Dealer		3600082		Clamp-On	N/A	N/A	
1995-2001 L4 – 2.2L	3100081		3600006		42 MM	LF	9 o'clock	
2002-2004 L4 – 2.2L (Ecotec), Transverse	3400019		3600100		Clamp-On	RR	N/A	
2005-2009 L4 – 2.2L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
1985-1986 L4 – 2.0L	3100062		3600006		42 MM	LF	4 o'clock	
1987-1993 L4 – 2.3L Quad IV	3100093		3600003		3/4" NPT	N/A	N/A	3
1994-1995 L4 – 2.3L Quad IV Gen II	3100001		3600002		1/2" NPT		N/A	
2006-2009 L4 – 2.4L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
2006-2009 L4 – 2.4L (Ecotec), Conventional	3400020		3600082		Clamp-On	RF	N/A	15
1996-2001 L4 – 2.4L (Twin Cam)	3100001		3600002		1/2" NPT		N/A	
2009 L4 – 2.4L (Toyota Engine) (Vibe)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
1977-1987 L4 – 2.5L, Conventional	3100076		3600006		1-5/8"	LR	6 or 12 o'clock	
1980-1994 L4 – 2.5L, Transverse	3100076		3600006		1-5/8"	LF	12 o'clock	
6 Cylinder								
1980-1986 V6 – 2.8L, Transverse	3100014		3600006		34 MM	RS	3 o'clock	7
1985-1989 V6 – 2.8L, Transverse (Vin W)	3100015		3600006		34 MM	CR	3 o'clock	2
1982-1989 V6 – 2.8L, Conventional	3100014		3600006		34 MM	RFF IN BLOCK	3 o'clock	
1985-1988 V6 – 3.0L, Transverse	3100041		3600006		1-1/2"	LF	12 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
PONTIAC – Continued								
AUTOMOTIVE								
6 Cylinder								
1990-1997 V6 – 3.1, 3.4L, Conventional	3100015		3600006		34 MM	LC or RC	3 o'clock	2
1988-2002 V6 – 3.1L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2
1992-1997 V6 – 3.4L, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2, 5
1999-2004 V6 – 3.4, Transverse	3100015		3600006		34 MM	CR	3 o'clock	2, 5
2005-2009 V6 – 3.4, Transverse (Torrent)	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
2005-2009 V6 – 3.5L, Transverse	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
2007-2009 V6 – 3.6L, Transverse	3100110		3600082		Cartridge	LR	N/A	15
2008-2009 V6 – 3.6L, Conventional	3100110		3600082		Cartridge	LR	N/A	15
2005-2009 V6 – 3.9L, Transverse	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
1988-2004 V6 – 3300, 3800, Transverse	3100041		3600006		1-1/2"	RF or LF	12 o'clock	
2005-2009 V6 – 3800, Transverse	3100109	3100127	3600082	3600119	28 MM THD	CR	N/A	15
1996-2002 V6 – 3.8L Firebird	3100041		3600006		1-1/2"	RF	12 o'clock	
1976-1988 V6 – 3.8L (231 cu. in.), Conventional	3100039		3600006		1-1/2"	RR	12 o'clock	1
1987-1989 V6 – 3.8L (231 cu. in.), Transverse	3100041		3600006		1-1/2"	LF	3 o'clock	
1980-1981 V6 – 3.8L (229 cu. in.)	3100057	3100126	3600006	3600116	1-1/2"	LR	6 o'clock	
1982-1983 V6 – 4.1L (252 cu. in.)	3100039		3600006		1-1/2"	RR	12 o'clock	1
1985-1987 V6 – 4.3L	3100057	3100126	3600006	3600116	1-5/8"	LR	6 o'clock	
1982-1985 V6 – 4.3L, Diesel	3100039		3600006		1-1/2"	LF or LR	12 o'clock	
1955-1973 L6 – 194, 230, 250 cu. in.	3100054		3600006		1-5/8"	LF	12 o'clock	
1974-1978 L6 – 250 cu. in.	3100054		3600006		1-5/8"	LR	12 o'clock	8
8 Cylinder								
1975-1976 V8 – 260 cu. in.	3100039		3600006		1-1/2"	RF	6 o'clock	
1980-1981 V8 – 4.3L (265 cu. in.)	3100070		3600006		1-15/16"	LC	11 o'clock	1
1978-1982 V8 – 4.4L (267 cu. in.)	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1977-1981 V8 – 301 cu. in.	3100070		3600006		1-15/16"	LR	6 or 12 o'clock	
1958-1994 V8 – 283, 305, 307, 327, 350, 400 (Red) cu. in.	3100057	3100126	3600006	3600116	1-5/8"	LR	9 o'clock	
1973-1979 V8 – 350, 400, 455 (Blue) cu. in.	3100070		3600006		1-15/16"	LC or LR	12 o'clock	
2005-2007 V8 – 5.3L, Transverse	3100109	3100127	3600082	3600119	28 MM THD	RF	N/A	15
1998-2002 V8 – 5.7L Gen 3	3100005		3600100		28 MM THD	LR	N/A	
2004 V8 – 5.7L Gen 3	3100005		3600100		28 MM THD	LR	N/A	
1980-1985 V8 – 5.7L (350 cu. in.), Diesel	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
2005-2006 V8 – 6.0L LS2	3100109	3100127	3600082	3600119	28MM THD	LF	N/A	15
2008-2009 V8 – 6.0L	3100109	3100127	3600082	3600119	28MM THD	LF	N/A	15
2009 V8 – 6.2L	3100109	3100127	3600082	3600119	28MM THD	LF	N/A	15
1962-1970 V8 – 396, 409, 427 cu. in.	3100065		3600006		1-3/4"	RC or LF	3 or 12 o'clock	
1977-1989 V8 – 307,350, 403 cu. in. (Oldsmobile eng)	3100039		3600006		1-1/2"	RF	12 o'clock	
1970-1977 V8 – 454 cu. in.	3100065		3600006		1-3/4"	RC	6 o'clock	
1971-1981 V8 – 350 cu. in. (Buick engine)	3100039		3600006		1-1/2"	LF or RF	12 o'clock	
PORSCHE								
AUTOMOTIVE								
6 Cylinder								
1998-2011 H6 – 2.5, 2.7, 3.0, 3.2, 3.6, 3.8, 4.0L	See Dealer		N/A		N/A	N/A	N/A	
2012 V6 – 3.0L Hybrid	See Dealer		N/A		N/A	N/A	N/A	
2004-2007 V6 – 3.2L (Cayenne)	3100010		3600005		30 MM	CFF	10 o'clock	
2007-2010 V6 – 3.6L (Cayenne)	See Dealer		N/A		N/A	N/A	N/A	
2011-2019 V6 – 3.6L (Panamera, Cayenne)	See Dealer		N/A		N/A	N/A	N/A	
8 Cylinder								
2003-2006 V8 – 4.5L (Cayenne &, Turbo)	See Dealer		N/A		N/A	RFF	N/A	
2007-2014 V8 – 4.8L (Cayenne & Panamera)	See Dealer		N/A		N/A	N/A	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
SAAB								
AUTOMOTIVE								
4 Cylinder								
1975-1984 L4 – 2.0, 2.1L	3100056		3600006		1-5/8"	RR	3 o'clock	
1985-1993 L4 – 2.0, 2.1L	See Dealer		3600083		26 MM THD	N/A	N/A	
2003-2012 L4 – 2.0L, Turbo	See Dealer		N/A		Clamp-On	N/A	N/A	
2004-2005 H4 – 2.0L, Turbo (Subaru Engine)	3100008		3600003		36 MM THD	LF Bottom	N/A	
1990-2005 L4 – 2.3L (B234)	3100033		3600006		36 MM	LF	9 o'clock	
2004-2005 H4 – 2.5L (Subaru Engine)	3100008		3600003		36 MM THD	LF Bottom	N/A	
6 Cylinder								
1994-1995 V6 – 2.5L	See Dealer		N/A		N/A	N/A	N/A	
2006-2012 V6 – 2.8L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
1999-2003 V6 – 3.0L	3100006	3100124	3600005	3600117	LF	N/A	N/A	
2005-2007 L6 – 4.2L, Conventional	3100109	3100127	3600082	3600119	28 MM THD	LF	N/A	15
8 Cylinder								
2005-2007 V8 – 5.3L, Conventional	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15
SATURN								
AUTOMOTIVE								
4 Cylinder								
1991-2001 L4 – 1.9L	See Dealer		N/A		Clamp-On	N/A	N/A	
2004 L4 – 2.0L (Ecotec), Transverse	3400019		3600100		Clamp-On	RR	N/A	
2005-2006 L4 – 2.0L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
2007-2009 L4 – 2.0L (Ecotec, Turbo), Conventional	See Dealer		3600082		Clamp-On	N/A	N/A	
2000-2004 L4 – 2.2L (Ecotec), Transverse	3400019		3600100		Clamp-On	RR	N/A	
2005-2006 L4 – 2.2L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
2006-2009 L4 – 2.4L (Ecotec), Transverse	3400020		3600082		Clamp-On	RR	N/A	15
2006-2009 L4 – 2.4L (Ecotec), Conventional	3400020		3600082		Clamp-On	RF	N/A	15
6 Cylinder								
2000-2004 V6 – 3.0L	3100006	3100124	3600005	3600117	28MM THD	LF	N/A	
2005-2006 V6 – 3.0L	See Dealer		N/A		N/A	N/A	N/A	
2007-2009 V6 – 3.5L, Transverse	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15
2007-2009 V6 – 3.6L, Transverse	3100110		3600082		Cartridge	LR	N/A	15
LIGHT & MEDIUM DUTY TRUCKS & VANS								
4 Cylinder								
2002-2004 L4 – 2.2L	3400019		3600100		Clamp-On	RR	N/A	
2005-2007 L4 – 2.2L	3400020		3600082		Clamp-On	RR	N/A	15
6 Cylinder								
2002-2004 V6 – 3.0L								
2005-2007 V6 – 3.0L	See Dealer		N/A		N/A	N/A	N/A	
2004-2007 V6 – 3.5L (Honda Engine)	3100006	3100124	3600005	3600117	28 MM THD	LF	N/A	
2005-2009 V6 – 3.5L	3100109	3100127	3600082	3600119	28 MM THD	LR	N/A	15
2007-2009 V6 – 3.6L, Transverse	3100110		3600082		Cartridge	LR	N/A	15
SCION								
AUTOMOTIVE								
4 Cylinder								
2004-2009 L4 – 1.5L (1NZ-FE)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
2012-2018 H4 – 2.0L	See Dealer		N/A		36 MM THD	LF Bottom	N/A	
2004-2014 L4 – 2.4L	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
2011-2018 L4 – 2.5L (2AR-FE)	See Dealer		N/A		N/A	N/A	N/A	
SMART								
AUTOMOTIVE								
3 Cylinder								
2005-2007 L3 – Diesel (ForTwo)	See Dealer		N/A		N/A	N/A	N/A	
2008-2015 L3 – Gasoline (ForTwo)	See Dealer		N/A		N/A	N/A	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
SUBARU								
AUTOMOTIVE								
1980-2012 – ALL H4 & H6	3100008		3600003		36 MM THD	LF Bottom	N/A	
2012-2019 H4 – 2.0L	See Dealer		N/A		36 MM THD	LF Bottom	N/A	
2008-2019 H6 – 3.6L	See Dealer		N/A		36 MM THD	N/A	N/A	
SUZUKI								
AUTOMOTIVE								
3 Cylinder								
1985-2000 L3 – 1.0L	3400002		3600002		Clamp-On	N/A	N/A	
4 Cylinder								
1985-1999 L4 – 1.3L	3400004		3600020		Clamp-On	N/A	N/A	
1989-2001 L4 – 1.6L	3400003		3600002		Clamp-On	N/A	N/A	
2005-2006 L4 – 1.6L (Swift)	See Dealer		N/A		N/A	N/A	N/A	
2011-2012 L4 – 1.6L (Swift)	See Dealer		N/A		N/A	N/A	N/A	
1998-2003 L4 – 1.8L	See Dealer		N/A		30 MM	LR	N/A	
1999-2003 L4 – 2.0L	See Dealer		N/A		30 MM	LR	N/A	
2003-2004 L4 – 2.0L (Aerio)	See Dealer		N/A		N/A	N/A	N/A	
2004-2005 L4 – 2.0L (Reno)	See Dealer		N/A		N/A	N/A	N/A	
2007-2012 L4 – 2.0L (SX4)	See Dealer		N/A		N/A	N/A	N/A	
2005-2007 L4 – 2.3L (Aerio)	See Dealer		N/A		N/A	N/A	N/A	
2009-2012 L4 – 2.4L (J24B) (Vitara, Kizashi)	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
2004-2006 L6 – 2.5L	See Dealer		N/A		N/A	N/A	N/A	
1999-2003 V6 – 2.5L	See Dealer		N/A		Clamp-On	LF	N/A	
2004 L6 – 2.5L	See Dealer		N/A		Clamp-On			
2001-2007 V6 – 2.7L	See Dealer		N/A		Clamp-On	LF	N/A	
2008-2009 V6 – 3.2L	3100110		3600082		Cartridge	LR	N/A	15
2007-2010 V6 – 3.6L (XL7)	3100110		3600082		Cartridge	LR	N/A	15
2011-2012 V6 – 4.0L (Equator)	See Dealer		N/A		N/A	N/A	N/A	
TOYOTA								
AUTOMOTIVE								
4 Cylinder								
1967-1980 L4 – 1.1L (K), 1.2L (3K, 3KC)	3100016		3600006		35 MM	LF	6 o'clock	
1981-1985 L4 – 1.3L (4KC, 4KE)	3100021		3600006		35 MM	LF	6 o'clock	
1980-1987 L4 – 1.5L (3A, 1AC, 3AC)	3100049		3600006		40 MM	LC	12 o'clock	
1988-1990 L4 – 1.5L (3E)	3100021		3600006		35 MM	LF	10-12 o'clock	
1990-1994 L4 – 1.5L (3EE)	3100019		3600006		35 MM	LF	12 o'clock	
1992-1999 L4 – 1.5L (5EFE)	3100011		3600004		30 MM	2ND RF	3 o'clock	
2000-2019 L4 – 1.5L (1NZ-FE)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
2004-2009 L4 – 1.5L (1NZ-FXE) (Prius)	See Dealer		N/A	N/A	N/A	N/A	N/A	
1983-1986 L4 – 1.6L (4AC), Conventional	3100049		3600006		40 MM	2ND LF	12 o'clock	
1985-1997 L4 – 1.6L (4AF, 4AFE), Transverse	3100049		3600006		40 MM	CF	12 o'clock	
1984-1987 L4 – 1.6L (4AC), Transverse	3100049		3600006		40 MM	2ND LF	12 o'clock	
1985-1988 L4 – 1.6L (4AGE), Conventional	3100021		3600006		35 MM	RC	9 or 12 o'clock	
1985-1989 L4 – 1.6L (4AGE) (Mid engine)	3100021		3600006		35 MM	RF	12 o'clock	
1988-1991 L4 – 1.6L (4AGE), Transverse	3100021		3600006		35 MM	LR	9 or 12 o'clock	
1971-1982 L4 – 1.6L (2TC), 1.8L (3TC)	3100075		3600004		35 MM	LF	9 o'clock	
1970-1978 L4 – 1.8L (8R, 8RC)	3100048		3600006		40 MM	LC	12 o'clock	
1966-1980 L4 – 1.8L (3R, 3RB, 3RC)	3100071		3600006		50 MM	LF	12 o'clock	
2019 L4 - 1.8L Corolla L.E.	See Dealer		N/A	N/A	N/A	N/A	N/A	
1993-1997 L4 – 1.8L (7AFE), Transverse	3100049		3600006		40 MM	CF	12 o'clock	
1998-2014 L4 – 1.8L (1ZZFE), Transverse	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	

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FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
TOYOTA – Continued								
AUTOMOTIVE								
4 Cylinder								
2010-2016 L4 – 1.8L (2ZR-FXE) (Prius)	See Dealer		N/A		N/A	N/A	N/A	
1994-2002 V8 – 7.3L (T444E)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
1972-1974 L4 – 2.0L (18RC)	3100049		3600006		40 MM	RR	12 o'clock	
1987-1991 L4 – 2.0L (3SFE)	3100098	3100122	3600006	3600116	35 MM	2ND RR	9 o'clock	
1986-1989 L4 – 2.0L (3SGE)	3100019		3600006		35 MM	2ND RR	9 or 12 o'clock	
1983-1986 L4 – 2.0L (2SE,2SGE)	3100049		3600006		40 MM	2ND LF	12 o'clock	
1975-1980 L4 – 2.2L (20R)	3100049		3600006		40 MM	RF	6 o'clock	
1991-1993 L4 – 2.2L (5SFE) MR2	3100021		3600006		35 MM	2ND LR	9 o'clock	
1990-1995 L4 – 2.2L (5SFE) (Celica)	3100049		3600006		40 MM	2ND LF	12 o'clock	
1990-2001 L4 – 2.2L (5SFE), Transverse	3100049		3600006		40 MM	2ND LF	12 o'clock	
1990-1993 L4 – 2.2L (5SFE) (Mid engine)	3100049		3600006		40 MM	2ND LR	12 o'clock	
1981-1985 L4 – 2.4L (22R, 22RE)	3100049		3600006		40 MM	RF	10 o'clock	
2002-2008 L4 – 2.4L (2AZ-FE)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
2009-2019 L4 – 2.5L (2AR-FE)	See Dealer		N/A		Cartridge	LR	N/A	
6 Cylinder								
1989-1991 V6 – 2.5L (2VZFE)	3100019		3600006		35 MM	CF	6 o'clock	
1992-1996 V6 – 3.0L (3VZFE)	3100021		3600006		35 MM	LF	3 o'clock	
1994-2006 V6 – 3.0L (1MZ-FE)	3100029		3600006		35 MM	RF	3 o'clock	
1966-1971 L6 – 2.2L (2M)	3100048		3600006		40 MM	LF	12 o'clock	
1971-1979 L6 – 2.6L (4M)	3100049		3600006		40 MM	RR	5 o'clock	
1979-1988 L6 – 2.6L (4ME), 2.8L (5ME, 5MGE)	3100049		3600006		40 MM	RF	10 o'clock	
1986-1995 L6 – 2.8L (5MGE)	3100049		3600006		40 MM	LF	10-12 o'clock	
1986-1995 L6 – 3.0L (7MGE)	3100049		3600006		40 MM	LF	10-12 o'clock	
2004-2006 V6 – 3.3L	3100029		3600006		35 MM	RF	3 o'clock	
2005-2019 V6 – 3.5L (2GR-FE)	See Dealer		N/A		Cartridge	LF	N/A	
LIGHT & MEDIUM DUTY TRUCKS & VANS								
4 Cylinder								
1981-1987 L4 – 1.8L (L), 2.2L (2L,2LT), Diesel	3100024		3600006		35 MM	LR	12 o'clock	1
1996-2000 L4 – 2.0L (3SFE) (RAV4)	3100098	3100122	3600006	3600116	35 MM	2ND RR	9 o'clock	
2001-2005 L4 – 2.0L (RAV4)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
1984-1989 L4 – 2.0L (3YE), 2.2L (4YE)								
1972-1974 L4 – 2.0L (18RC)	3100049		3600006		40 MM	RR	12 o'clock	
1975-1980 L4 – 2.2L (20R)	3100049		3600006		40 MM	RF	6 o'clock	
1981-1998 L4 – 2.4L (22R, 22RE, 22RTE)	3100049		3600006		40 MM	RF	10 o'clock	
1991-1997 L4 – 2.4L (2TZ-FE) (Previa)	3100022		3600006		35 MM	BOTTOM RF	9 o'clock	
2001-2013 L4 – 2.4L	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
1994-2019 L4 – 2.7L	See Dealer		N/A		N/A	N/A	N/A	
2009-2019 L4 – 2.7L (1AR-FE), Transverse	See Dealer		N/A		N/A	N/A	N/A	
1981-1987 L4 – 3.4L (3B), Diesel	3100021		3600006		35 MM	LR	11 or 12 o'clock	
6 Cylinder								
1988-1998 V6 – 3.0L (3VZE)	3100098	3100122	3600006	3600116	35 MM	LF or 2ND LF	3 o'clock	
1998-2003 V6 – 3.0L (1MZ-FE)	3100029		3600006		35 MM	RF	3 o'clock	
2004-2006 V6 – 3.3L (2MZFE)	3100029		3600006		35 MM	RF	3 o'clock	
1997-2003 V6 – 3.4L (5VZ-FE)	See Dealer		N/A		N/A	N/A	N/A	
2003-2019 V6 – 4.0L (1GR-FE)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
1985-1987 L6 – 3.9L (2H), Diesel	3100021		3600006		35 MM	RR	3 or 5 o'clock	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Positon	Foot Notes*
TOYOTA – Continued								
LIGHT & MEDIUM DUTY TRUCKS & VANS								
8 Cylinder								
2010-2019 V8 – 4.6L	See Dealer		N/A		N/A	N/A	N/A	
1998-2009 V8 – 4.7L (2UZ-FE)	See Dealer		N/A		35 MM	2ND RF	N/A	
2007-2019 V8 – 5.7L (3UR-FE)	3100129	3100123	3600083	3600119	Cartridge	LR	N/A	
VOLKSWAGEN								
AUTOMOTIVE								
4 Cylinder								
1962-1976 L4 – ALL Air Cooled, except 411, 412	See Dealer		N/A		N/A	N/A	N/A	
1971-1976 L4 – 411, 412	See Dealer		N/A		N/A	N/A	N/A	
1974-1994 L4 – 1.5L, 1.6 &, 1.7L Gas/Diesel (Conv)	3100034		3600016		36.5 MM	2ND RF	6 o'clock	2
1974-1994 L4 – 1.5L, 1.6, & 1.7L Gas/Diesel (Trans)	3100034		3600016		36.5 MM	CR or RR	6 o'clock	2
1987-1995 L4 – 1.8L, Conventional	3100034		3600016		36.5 MM	RF	12 o'clock	2
1983-1997 L4 – 1.8L, Transverse	3100034		3600016		36.5 MM	CR or RR	12 o'clock	2
1998-2005 L4 – 1.8L, Turbo	See Dealer		N/A		N/A	N/A	N/A	
1993-1997 L4 – 1.9L, Turbo, Diesel	3100034		3600016		36.5 MM	LR or CR	6 o'clock	2
1998-1999 L4 – 1.9L, Turbo, Diesel (Direct Injection)	3100034		3600016		36.5 MM	LR	N/A	2
2000-2005 L4 – 1.9L, Turbo Diesel (Direct Injection)	See Dealer		N/A		N/A	N/A	N/A	
1991-1999 L4 – 2.0L, Transverse	3100034		3600016		36.5 MM	CR or RR	6 o'clock	2
1998-2005 L4 – 2.0L (Beetle)	See Dealer		N/A		N/A	N/A	N/A	
2000-2015 L4 – 2.0L	See Dealer		N/A		N/A	N/A	N/A	
2004-2006 L4 – 2.0L, Diesel (Direct Injection)	See Dealer		N/A		N/A	N/A	N/A	
2009-2015 L4 – 2.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
2006-2015 L4 – 2.0L, Turbo FSI & TSI	See Dealer		N/A		N/A	N/A	N/A	
5 Cylinder								
1987-1995 L5 – 2.2, 2.3L	3100035		3600016		36.5 MM	RF or 2ND RF	3 o'clock	
2005-2014 L5 – 2.5L	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
1993-2002 VR6 – 2.8L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2003-2004 VR6 24V – 2.8L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2004 VR6 24V – 3.2L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2008 VR6 24V – 3.2L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
1998-2004 V6 – 2.8L, Conventional	See Dealer		N/A		N/A	N/A	N/A	
2006-2015 VR6 – 3.6L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
8 Cylinder								
2003-2004 W8 – 4.0L	See Dealer		N/A		N/A	N/A	N/A	
2004-2006 V8 – 4.2L	See Dealer		N/A		N/A	N/A	N/A	
12 Cylinder								
2004-2006 W12 – 6.0L	See Dealer		N/A		N/A	N/A	N/A	
LIGHT & MEDIUM DUTY TRUCKS & VANS								
4 Cylinder								
2009-2014 L4 – 2.0L, Turbo TSI	See Dealer		N/A		N/A	N/A	N/A	
5 Cylinder								
1992-1995 L5 – 2.5L	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
2002-2003 VR6 24V – 2.8L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2010-2015 V6 – 3.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
2003-2007 VR6 – 3.2L, Conventional	3100010				30 MM	CFF	10 o'clock	
2007-2014 VR6 – 3.6L, Conventional	See Dealer		N/A		N/A	N/A	N/A	
2009 V6 – 3.8L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2009 V6 – 4.0L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
8 Cylinder								
2003-2010 V8 – 4.2L	See Dealer		N/A		N/A	N/A	N/A	

Point Element - Please confirm element orientation during installation. Improper position may result in heater or engine damage. Description of footnotes - See page 46

FREEZE PLUG HEATER (UNLESS OTHERWISE NOTED)								
MAKE, MODEL, YEAR, ENGINE	Heater Part No. Std Kit	Heater Part No. Lit Kit	Repl. Cord Part No. Std Cord	Repl. Cord Part No. Lit Cord	Bore Diameter	Installation Location	Element Position	Foot Notes*
VOLKSWAGEN – Continued								
LIGHT & MEDIUM DUTY TRUCKS & VANS								
10 Cylinder								
2004-2008 V10 – 5.0L, Diesel	See Dealer		N/A		N/A	N/A	N/A	
VOLVO								
AUTOMOTIVE								
4 Cylinder								
2000-2003 L4 – 1.9L	See Dealer		N/A		N/A	N/A	N/A	
1985-1991 L4 – 2.3L (B230)*	3100047		3600006		40 MM	RF	9 o'clock	14
1991-1996 L4 – 2.3L (B230)	3100052		3600006		40 MM	RF	9 o'clock	14
1989-1990 L4 – 2.3L (B234)	3100052		3600006		40 MM	RF	9 o'clock	
1962-1979 L4 – 1.8L, 2.0L	3100064		3600006		1-3/4"	RR	3 o'clock	
1976-1984 L4 – 2.1L, 2.3L (B21,B23)	3100064		3600006		1-3/4"	RR	9 o'clock	
5 Cylinder								
1993-2006 L5 – 2.3L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
1993-2011 L5 – 2.4L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2003-2019 L5 – 2.5L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2006-2019 L5 – 2.5L, Turbo, Transverse	See Dealer		N/A		N/A	N/A	N/A	
6 Cylinder								
1976-1990 V6 – 2.7L, 2.8L	3100031		3600006		36 MM	RRF IN HEAD	9 o'clock	
1980-1986 L6 – 2.4L, Diesel	3100034		3600016		36.5 MM	RC	6 o'clock	
1969-1979 L6 – 3.0L	3100064		3600006		1-3/4"	RR	9 o'clock	
1992-1998 L6 – 3.0L Turbo, Transverse	See Dealer		N/A		N/A	N/A	N/A	
1999-2006 L6 – 2.9L, (Transverse, inc, Turbo)	See Dealer		N/A		N/A	N/A	N/A	
2008-2019 L6 – 3.0L, Turbo, Transverse	See Dealer		N/A		N/A	N/A	N/A	
2007-2015 L6 – 3.2L, Transverse	See Dealer		N/A		N/A	N/A	N/A	
8 Cylinder								
2006-2011 V8 – 4.4L, Transverse	3100002	3100121	3600001	3600118	3/4" NPT	LR	N/A	

FOOTNOTES

Footnote #	Application Information
1	Remove and replace starter
2	Pull or pry out core plug
3	Replacement heater only. May require lower coolant return line (steel tube purchase from GM)
4	Remove and replace alternator
5	Installation by certified mechanic recommended
6	On some models, the air pump has to be loosened
7	Remove right front wheel and splash guard
8	Lower Radiator Hose Heater: 1970 & Prior 1-3/4", 1971 & Later 1-1/2"
9	Lower Radiator Hose Heater: 1970 & Prior 1-3/4", 1971-1993 1-1/2"
10	Install in hose rise closet to water pump
11	Lower Radiator Hose Heater: 1977-1982 1-1/4", 1983-1985 1-1/2"
12	Lower Radiator Hose Heater: 1993 & prior
13	If LR is a 40mm core hole, install heater in 2NDLR
14	Core Hole Type: 1985-1991 Stepped, 1991-1996 Standard (Confirm with dealer)
15	Kit contains a thermostatically controlled cord required for compatibility with the OBD 11 system in these vehicles
16	May Require: Mounting Elbow 14075-AM700, Gasket 11065-AM700, and Bolts A1005H8 (Available from Nissan Infinity)
17	Heater location is behind the exhaust manifold

AGRICULTURAL, HEAVY DUTY, OFF ROAD & INDUSTRIAL APPLICATION

except where noted

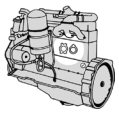
SECTION DESCRIPTIONS

Manufacturer

MACK

E6 (672 CID 6 cyl.)
(Engines with smooth bore freeze plug. Example: EM6300, E6350, EM6237)

Part No.	Watt	Volt	Diameter	Type
8609748	1500	120	1-3/4"	Freeze Plug
8609772	1500	**240**	1-3/4"	Freeze Plug



Installation Information: Replaces 1-3/4" freeze plug on side of engine.
Available Service Parts: O-ring and clamping device kit (3500003)

Installation Information. See chart below for mounting location information.

Part Number, Heater Wattage, Heater Voltage, Bore Diameter (if applicable), Heater Type. "Plate" indicates mounting plate installation.

Additional engine information, selection criteria

Engine Model and/or size, plus any descriptions

Typical applications for engine:

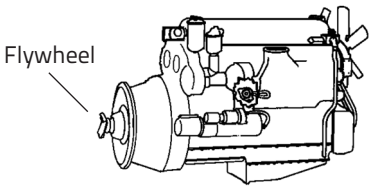
Agricultural Use

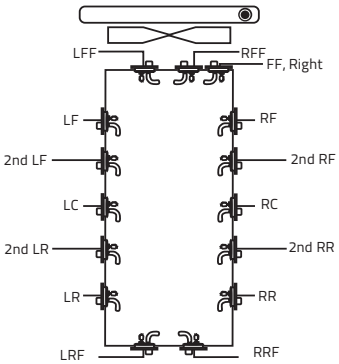
Industrial Use

Heavy Duty Truck Use

INSTALLATION LOCATION

Heater installation locations are as viewed from flywheel end of engine.





Note: Heaters in this section ship with the appropriate standard 6 ft. cord.

CF ..... Center Front
CR ..... Center Rear
F ..... Front
FF ..... Front Face of Block
LC ..... Left Center
LF ..... Left Front
2ND LF ..... 2ND from Left, Front
LFF ..... Front Face, Left Cylinder
LLC ..... Left Side, Lower Center
LR ..... Left Rear
2ND LR ..... 2ND from Left, Rear
LS ..... Left Side
R ..... Rear
RC ..... Right Center
Rear ..... Rear Face or Side
RF ..... Right Front
2ND RF ..... 2ND from Right Front
RFF ..... Front Face, Right Cylinder Head
RR ..... Right Rear
RS ..... Right Side
2ND RR ..... 2ND Core Plug from the Right Rear

UTILISATION AGRICOLE, POIDS LOURD & INDUSTRIEL

sauf où il y a une note

DESCRIPTION DES SECTIONS

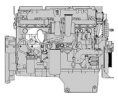
Manufacturier

MACK

E6 (672 CID 6 cyl.)

(Moteurs avec bouchon expansible à alésage lisse. Exemple: EM6300, E6350, EM6237)

Numero de pièce	Watt	Volt	Diamètre	Type
8608748	1500	120	1-3/4"	Bouchon expansible
8609772	150	240	1-3/4"	Bouchon expansible



Consignes d'installation :

Remplace le bouchon expansible 1-3/4" sur le côté du moteur.

Pièces disponibles : ensemble de joints toriques et dispositif de serrage (3500003)

Consignes d'installation : voir le schéma ci-dessous pour information sur l'emplacement du montage.

No Pièce: puissance et tension du chauffe-moteur, diamètre de l'alésage (si applicable), type de chauffe-moteur, "Plaque" indique installation avec plaque de montage.

Critères de sélection additionnels en fonction du moteur.

Modèle et/ou grandeur du moteur, plus toutes autres descriptions.

Application d'usage pour un moteur

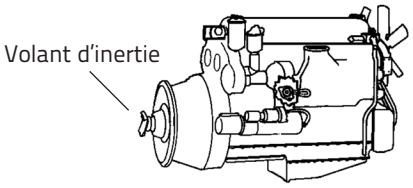
Usage agricole

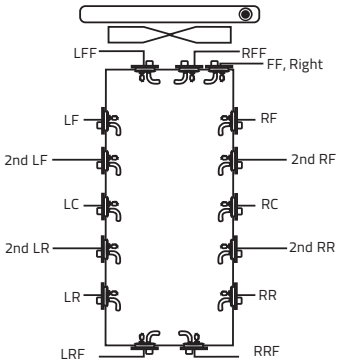
Usage industriel

Usage pour camions lourd

EMPLACEMENT POUR L'INSTALLATION

Emplacements d'installation du chauffe-moteur sont montrés à partir de l'extrémité du volant d'inertie et du moteur





CF ..... Centre avant
CR ..... Centre arrière
F ..... Avant
FF ..... Face avant du bloc moteur
LC ..... Centre gauche
LF ..... Avant gauche
2ND LF ..... 2e avant gauche
LFF ..... Face avant, gauche du cylindre
LLC ..... Face gauche, bas du centre
LR ..... Arrière gauche
2ND LR ..... 2e Arrière gauche
LS ..... Côté gauche
R ..... Arrière
RC ..... Centre droit
Rear ..... Face arrière ou côté
RF ..... Avant droit
2ND RF ..... 2e de l'avant droit
RFF ..... Face avant, culasse de cylindre droit
RR ..... Arrière droite
RS ..... Côté droit
2ND RR ..... 2e bouchon expansible à partir de l'arrière droite

Remarque : Les chauffes-moteurs dans cette section sont expédiés avec le cordon standard de 6 pi. approprié.

ALLIS CHALMERS

170 Diesel

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Install in Left, 2ND from Rear. Point element UP/DOWN.

180, 185, 200, 7000, 7010, 7020
(649, 649T, 2800, 2900 engines)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500014	1000	120	Plate	Immersion	3600024

Installation Information: Install in Right Rear (RR). Point element forward.

7030, 7040, 7045, 7050, 7060, 7080, 7580
(D21, 210, 220, 3500 & 3700, 670T & 670I engines)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500013	1500	120	1" NPT	Immersion	3600008

Installation Information: Install in Right Rear (RR).

W, WC, WD, WF, WR, WD-45

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200003	600	120	1-1/2"	LRHH	3600047

Installation Information: Lower Radiator Hose Heater.
Circulation heater is acceptable alternative.

XP-170, XP190

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200004	600	120	1-3/4"	LRHH	3600047

Installation Information: Lower Radiator Hose Heater. Circulation heater is acceptable alternative.

XP180, XP210, XP220

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200005	600	120	2"	LRHH	3600047

Installation Information: Lower Radiator Hose Heater. Circulation heater is acceptable alternative.

BELARUS

500, 800, 900 Series

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in Right Front (RF). Use 1" x 3/4" bushing.

BOLENS

5117H (Mitsubishi L3A)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100049	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element 9 o'clock.

G2102, 2104, 2702, 2704

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100067	400	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Left Center (LC). Point element UP.

BOLENS – CONTINUED

TS1910, TS3420 (2 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100067	400	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Left Side (LS). Point element DOWN.

TX1502, TX1504, TX1704

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100067	400	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Right Side (RS). Point element UP.

CASE IH / JI CASE / CASE NEW HOLLAND

336, 401, 451, 504 CID, 1470TK, W2A (504 CID) (4 & 6 cyl)

Part No.	Watt	Volt	Diameter	Type	Repl.Cord
3500024	1000	120	2"	Freeze Plug	3600008

Installation Information: Install in Right Rear (RR). Point element DOWN.

390 (4 cyl. 3.9L)**, 590** (6 cyl. 5.9L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500030	750	120	58mm	Freeze Plug	3600008
8601666	750	**240**	58mm	Freeze Plug	8608377

Installation Information: Installs in Right Side (RS). Point element DOWN. Circulation heater is acceptable alternative.

430, 730, 830 (188D, 251G, 267D, 284D, 310D)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500026	400	120	3/8"NPT	Immersion	N/A

Installation Information: Install in Left Side (LS). Circulation Heater or #3200005 Lower Radiator Hose Heater are acceptable alternatives.

675 (6 cyl.) **675TWV, TV140**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100133	600	120	1-1/2"	Freeze Plug	3600021

Installation Information: 2ND core hole from rear right side.

830 (6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601860	1000	120	58mm	Freeze Plug	3600008
8601852	1000	**240**	58mm	Freeze Plug	8608377

Installation Information: Install in Right Rear (RR). Point element 4 o'clock. Circulation heater is acceptable alternative.

930 (6 cyl.) **377G, 401D**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500026	400	120	3/8" NPT	Immersion	N/A

Installation Information: Install in Left Side (LS). Two heaters are required. Circulation heater is acceptable alternative.

B10

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500149	1000	120	42mm THD	Immersion	3600008

Installation Information: Replace 42mm pipe plug. **Available Service Parts:** Hex Nut (8602999), Element Gasket (8603650)

CASE IH / JI CASE / CASE NEW HOLLAND – CONTINUED

Case Maxxum (4 & 6 cyl.) **New Holland T6000 Series**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500154	750	120	58MM 2 Bolt Flange	Immersion	3600008

Installation Information: Install Right side (RS) of engine.

Cursor Engine

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500150	1000	120	42MM THD	Immersion	3600008

Installation Information: Replace 42mm pipe plug.

Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

CATERPILLAR

1100 Series, 3100 Series

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601518	1000	120	1-3/4"	Freeze Plug	3600008
8601577	1500	120	1-3/4"	Freeze Plug	3600008

Installation Information: Replaces freeze plug.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650).

1404 (163 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100088	400	120	2.125"	Freeze Plug	3600006

Installation Information: Install in Left Center (LC) or Left Rear (LR). Point element 12 o'clock.

1670 (350 CID)**, G/D 333** (525/638 CID), **1693, 1674** (638 CID)
Circulation Heater Recommended – See circulation heater section of this catalog

1693 & D343 (893 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601909	1500	120	Plate	Immersion	3600008

Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650).

1693T & 1693TA (893 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601976	1500	120	Plate	Immersion	3600008

Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650).

3003 (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100016	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 6 o'clock.

3013 (3 cyl.), **3024, 3014** (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100049	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 6 o'clock.

3034 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100101	400	120	50mm	Freeze Plug	3600006

Installation Information: Install in back of head. Point element 4 o'clock.

3046 (5L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100078	400	120	35mm	Freeze Plug	3600006

Installation Information: Install 2ND Left Rear (2ND LR). Point element 6 o'clock.

3054, 3056

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100045	600	120	1-1/2"	Freeze Plug	3600007

Installation Information: Install in 1-1/2" core hole on Right Side (RS) of engine, between #1 and #2 cylinders, behind exhaust manifold.

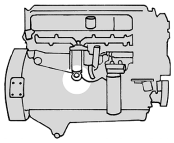
3054C, 3054E, C4.4 (2004-2006)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500084	750	120	1-1/4"	Freeze Plug	3600008

Installation Information: Install Right Rear (RR), Point element 3 o'clock.

3114 (4.4L), **3116** (6.6L), **3126** (7.2L), **3126B** (7.2L), **C7** (7.2L, all years prior to 2004), **C7 ACERT** (2004-2007), **CFE** (Caterpillar/Freightliner Engine)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500015	1000	120	44mm	Freeze Plug	3600048
3500016	1000	**240**	44mm	Freeze Plug	N/A
3500081	1500	120	44mm	Freeze Plug	3600048



Installation Information: Replaces core plug on center of Right Side. Heater kit includes special high temperature cordset. Engine may also accept oil pan heater 3500006 (3116 only). See threaded immersion heater section for product specifications.

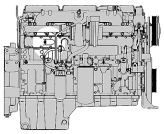
3150, 3160 (636 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602816	600	120	44mm	Freeze Plug	3600008

Installation Information: 3150: Replaces rear freeze plug on right side of engine (requires one heater)
3160: Replaces center freeze plug on side of engine (requires two heaters)
Available Service Parts: Hex nut (8602999), Element gasket (8603650)

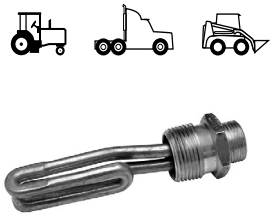
3176 (10.2L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601267	1500	120	3/4" NPT	Immersion	3600008
8601259	1500	240	3/4" NPT	Immersion	8608377



Installation Instructions: Replaces 3/4" pipe plug on Right Rear Side of engine. Special high temperature cordset included in kit. Engine may also accept Oil Pan Heaters 8609683, 8609659, or 8609713 (requires 1" x 1/2" bushing to reduce port size). See threaded immersion heater section for product specifications.

3196



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500013	1500	120	1" NPT	Immersion	3600008
3500031	1500	**240**	1" NPT	Immersion	8608377

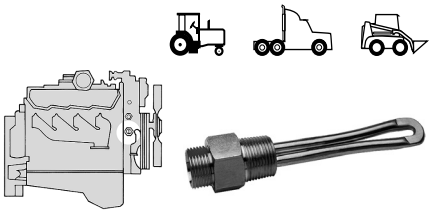
Installation Information: Replaces 1" NPT plug in rear of oil cooler. Engine may also accept the following oil pan heaters: 8609683, 8609659, 8609713 (requires 1" x 1/2" bushing to reduce port size). See oil pan heater section for product specifications.

3204, 3208 (636 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602816	600	120	44mm	Freeze Plug	3600008

Installation Information: 3204: Replaces Rear freeze plug on Right Side of engine (requires one heater). **3208:** Replaces center freeze plug on side of engine (requires two heaters). **Available Service Parts:** Hex Nut (8602999), Element Gasket (8603650).

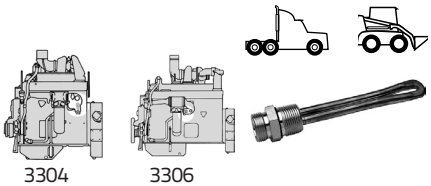
3208 (636 CID) Swivel style heater



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602549	1000	120	3/4" NPT	Immersion	3600008
8602514	1000	**240**	3/4" NPT	Immersion	8608377
8602611	1500	120	3/4" NPT	Immersion	3600008
8602573	1500	**240**	3/4" NPT	Immersion	8608377

Installation Information: Replaces 3/4" pipe plug on Front of engine.

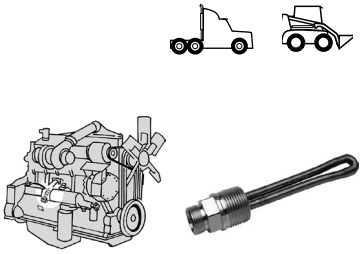
3304 (with oil cooler), **3306** (638 CID)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008
8600988	1000	**240**	3/4" NPT	Immersion	8608377
8601011	1500	120	3/4" NPT	Immersion	3600008
8601054	1500	**240**	3/4" NPT	Immersion	8608377

Installation Information: Replaces 3/4" pipe plug at Rear of oil cooler on Left Side of engine.

3406 (Except 1998 models)**, 3406** (with BrakeSaver-through 1993 models)**, 3406E**
Not for use with 1998 3406E or 15.8L 600 hp engine.



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600090	1000	120	1" NPT	Immersion	3600008
8600120	1000	**240**	1" NPT	Immersion	8608377
8605556	1500	120	1" NPT	Immersion	3600008
8600260	1500	**240**	1" NPT	Immersion	8608377
8605580	2000	120	1" NPT	Immersion	8608652

Installation Information: Without BrakeSaver: Replaces 1" pipe plug in oil cooler rear bonnet (pictured). **With BrakeSaver:** Install in front bonnet.

3406 (With BrakeSaver-1994 & newer)
Not for use with 1998 3406E or 15.8L 600 hp models.

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500013	1500	120	1" NPT	Immersion	3600008

Installation Information: Replaces 1" pipe plug in oil cooler, front bonnet.

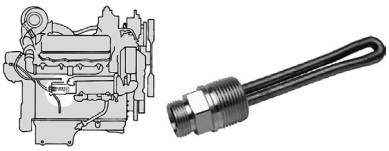
3406E (1998 models only), **3456, 15.8L** (600 hp)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500033	1500	120	1" NPT	Immersion	3600048
3500034	1500	120	1" NPT	HTR-Only	N/A

Installation Information: Installs in oil cooler rear bonnet. Not interchangeable with 8605556 for this application due to unique 1998 engine design.

3408 (1099 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600090	1000	120	1" NPT	Immersion	3600008
8600120	1000	**240**	1" NPT	Immersion	8608377
8605556	1500	120	1" NPT	Immersion	3600008
8600260	1500	**240**	1" NPT	Immersion	8608377



Installation Information: Replaces 1" pipe plug behind oil cooler on Right cylinder bank.

3412 (12 cyl.)

Circulation Heater Recommended – See circulation heater section of this catalog

C3.3B, C3.8

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500120	400	120	1" NPT	Immersion	3600110

Installation Information: C3.3B – Left Front (LF), C3.8 – Right Rear (RR).

C3.4, C3.4B

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100117	600	120	40mm	Freeze Plug	3600006

Installation Information: Right Front (RF).

C4.4

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500084	750	120	1-1/4"	Freeze Plug	3600008

Installation Information: Only use 3500084 when replacing existing freeze plug. 3500145 is recommended for all new installations. Install 3500145 Left Center (LC). Install 3500084 Right Rear (RR) or Right Front (RF) with element at 3 o'clock.

C4.4 ACERT Tier 4

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500145	600	120	3/4" NPT	Immersion	3600100
3500148	600	**240**	3/4" NPT	Immersion	8608377

Installation Information: Left Center (LC).

C6.6 (2006 & Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500087	1000	120	1-1/4"	Freeze Plug	3600008

Installation Information: Install in Right Rear (RR).

C9, C15, C16

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600090	1000	120	1" NPT	Immersion	3600008
8600120	1000	**240**	1" NPT	Immersion	8608377
8605556	1500	120	1" NPT	Immersion	3600008
8600260	1500	**240**	1" NPT	Immersion	8608377

Installation Information: Install in oil cooler rear bonnet.

C9 ACERT, C15 ACERT, C16 ACERT (2004-2006)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500073	1500	120	1-1/16" – 12	Immersion	3600008
3500077	1500	120	1-3/16" – 12	Immersion	3600008
3500076	1500	**240**	1-3/16" – 12	Immersion	8608377

Installation Information: Replaces 1-3/16" threaded plug in rear of oil cooler bonnet.
Engine may also accept the following oil pan heaters: 3500079, 3500078 (replaces 1-5/16" threaded plug).

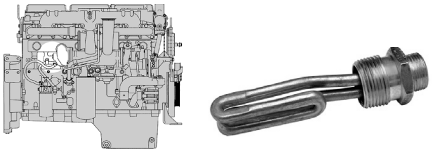
C9.3, C15

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500117	1500	120	1-5/16" – 12	Immersion	3600008
3500128	1500	**240**	1-5/16" – 12	Immersion	8608377

Installation Information: Right Rear (RR).

C10, C12

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500013	1500	120	1" NPT	Immersion	3600008
3500031	1500	**240**	1" NPT	Immersion	8608377



Installation Information: Replaces 1" NPT plug in rear of oil cooler. Engine may also accept the following oil pan heaters: 8609683, 8609659, 8609713 (requires 1" x 1/2" bushing to reduce port size).
See threaded immersion heater page for specifications.

C11 ACERT, C13 ACERT, 2004-2006 C11, C13 (2004-2006)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500075	1500	120	1-5/16" – 12	Immersion	3600008
3500074	1500	**240**	1-5/16" – 12	Immersion	8608377

Installation Information: Replaces 1-5/16" threaded plug in rear of oil cooler. Engine may also accept the following oil pan heaters: 3500079, 3500078 (replaces 1-5/16" threaded plug).

C13 ACERT & C15 ACERT (2007 & NEWER CAT)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500111	1500	120	1-3/16" – 12	Immersion	3600008

Installation Information: Replaces 1-3/16" plug located in the rear of the oil cooler, on right hand side of engine.

C18 ACERT

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500077	1500	120	1-3/16" – 12	Immersion	3600008
3500132	1500	**240**	1-3/16" – 12	Immersion	8608377

Installation Information: Right Rear (RR).

CHEVROLET

Forward & Tiltmaster, all Gasoline engines
See Chevrolet Automotive/Light Truck Gasoline applications.

CONTINENTAL (TELEDYNE)

F162, F163, Y112 (4 cyl.)(1981 & newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100053	400	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in any Left Side (LS). Point element UP.
Note: Heater for cup-type core hole only.

F227, F245 (1979 & newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100053	400	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in any Left Side (LS). Point element UP.

F227, F245 (1979 & newer – alternate wattage)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100057	600	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in any Left Side (LS). Point element UP.

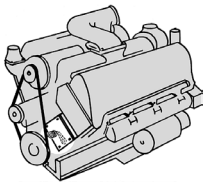
TM27, TMD27 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100060	400	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in any Right Side (RS). Point element UP.

CUMMINS

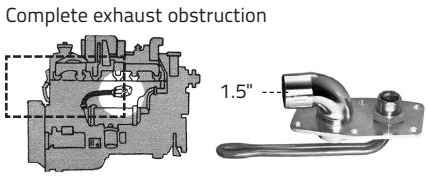
170 & 185 (470 CID), **210** (504 CID), **VT225, V555, VT555** (555 CID)
Engines without alternator mounted over water jacket access plate



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601763	1000	120	Plate	Immersion	3600008
8601801	1000	**240**	Plate	Immersion	8608377
8601844	1500	120	Plate	Immersion	3600008

Installation Information: Replaces water jacket access plate on front left cylinder bank.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650).
If Cummins 504 CID has alternator, uses International Bracket (3549687C1).

855 CID Engines with full flow cooling, low-mount oil cooler
(Connected to Front port, Rear port blocked by exhaust)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8608709	1500	120	Plate	Immersion	3600008

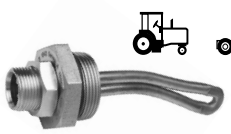
Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650), Plate Gasket (8603359)

855 CID Alternate installation
Rear plug location without aftercooler water connection.
Recommended as alternate location for cab-over vehicles only

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500036	1500	120	1-1/2" NPT	Immersion	3600008

Installation Information: Replaces 1-1/2" pipe plug on Rear face of engine, right side (above flywheel housing).

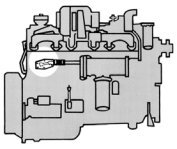
855 CID Alternate installation
1996 & newer engines with O-ring seal



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500023	1500	120	1-5/8" STOR	Immersion	3600008

Installation Information: Replaces 1-5/8" plug on Rear face of engine, right side (above flywheel housing).

855 CID Engines with full flow cooling, high-mount oil cooler
Uses hose and two clamps for water tube connection to casting.
(Most engines manufactured from August 1975 to June 1982)

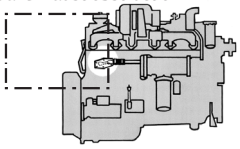


Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601100	1500	120	Plate	Immersion	3600008

Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650), Plate Gasket (8603359)

855 CID Engines with full flow cooling, high-mount oil cooler-obstruction
(Connected to Rear port which is partially blocked by exhaust)

Partial exhaust obstruction



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8608741	1500	120	Plate	Immersion	3600008

Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Plate Gasket (8603359)

855 CID Engines with full flow cooling, high-mount oil cooler – O-ring
(Uses O-ring for water tube connection. Engines only produced prior to 1975)
Circulation Heater Recommended - See circulation heater section of this catalog

855 CID Replacement element for existing 8602379 heater
(Does NOT include casting. Cordset is included)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602301	1500	120	Plate	Immersion	3600008

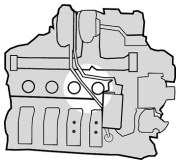
Installation Information: Replaces heating element in casting.
Available Service Parts: Hex Nut (8602999), Plate (8603138), Gasket (8603383)

B3.3T (3.3L)**, QSB** (3.3L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100046	400	120	40mm	Freeze Plug	3600006

Installation Information: Installs in Left Rear (LR).

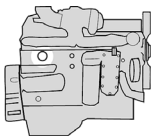
B Series: 4B3.9 & 4BT3.9 (1987-2002) (3.9L 239 CID 4 cyl., through model year 2002)
6B5.9 & **6BT5.9** (5.9L 359 CID 6 cyl.)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500030	750	120	58mm	Freeze Plug	3600008
8601666	750	**240**	58mm	Freeze Plug	8608377

Installation Information: Replaces freeze plug on Right side on engine.
Available Service Parts: O-ring and clamp device (3500002)

C Series: 6C8.3 & 6CT8.3 (8.3L 505 CID**), 6CTA8.3**

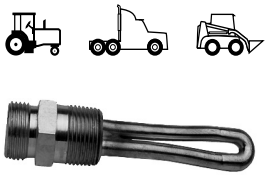


Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601860	1000	120	58mm	Freeze Plug	3600008
8601852	1000	**240**	58mm	Freeze Plug	8608377

Installation Information: Replaces freeze plug on Right rear side of engine.
Available Service Parts: O-ring and clamp device (3500002)

C & J 160, 175 & 190 (464 CID)
Circulation Heater Recommended – See circulation heater section of this catalog

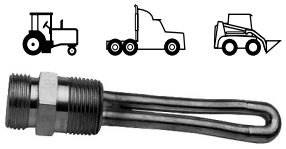
ISB Series: (5.9L, 6.7L) **QSB** (3.9L, 4.5L, 5.9L, 6.7L)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500022	750	120	3/4" NPT	Immersion	3600008
3500110	750	**240**	3/4" NPT	Immersion	8608377

Installation Information: Installs in 3/4" NPT port to Rear of oil cooler.

ISC, QSC Series (8.3L 505 CID)**, ISL Series** (8.9L 543 CID)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500032	1000	120	3/4" NPT	Immersion	3600008

Installation Information: Installs in upper 3/4" NPT port, to front of oil cooler.

ISV (5.0L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500165	600	120	27mm	Immersion	3600008

Installation Information: Install in Front Face, Left Cylinder (LFF)

ISX 12 (2007 & Newer)**, ISX 12G** (2007 & Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500107	1500	120	26mm	Immersion	3600008
3500153	1500	240	26mm	Immersion	8608377

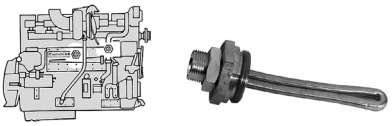
Installation Information: Install in Right Side (RS).

ISX (2007 & Newer)**, QSX** (2007 & Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500107	1500	120	26mm	Immersion	3600008
3500153	1500	240	26mm	Immersion	8608377

Installation Information: Install in Right Side (RS).

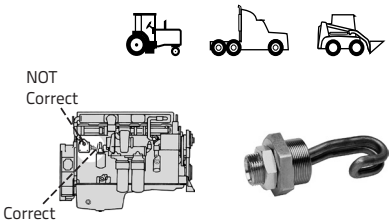
K Series (KT19, KT450, KT1150, KTA525 – 1150 CID 6 cyl.), **QSK Series**



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500017	1500	120	1-3/4"-18 THUD	Immersion	3600008

Installation Information: Replaces large hex plug at either upper front or center thread position on oil cooler cover. Point element 6 o'clock or 12 o'clock position.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

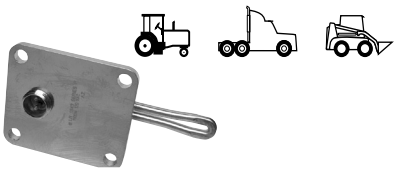
L10 (10L 611 CID 6 cyl.), **M11, ISM Series, QSM11**



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600015	1500	120	38mm THUD	Immersion	3600008
8600031	1500	**240**	38mm THUD	Immersion	8608377

Installation Information: Install in heater casting on Right rear side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

M11 (11L) (2000 and newer)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500042	1500	120	Plate	Immersion	3600008
3500109	1500	**240**	Plate	Immersion	8608377

Installation Information: Install on Right Rear (RR) side of engine.

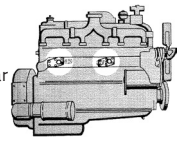
N Series (855 CID-14 litre NT315, N14-330, N14-330E, N14-460, etc.)
Big Cam IV, New Big Cam IV, 88NT, 444
Engines without heater hose connection to rear plate or Full Flow Cooling

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601003	1000	120	Plate	Immersion	3600008
8601046	1500	120	Plate	Immersion	3600008
8601062	1500	**240**	Plate	Immersion	8608377

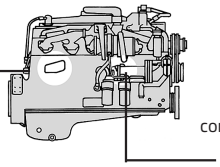
Replaces water jacket access plate

Installation Information: Due to oil cooler provisions on 855 CID series engines, special applications which accommodate full flow cooling designs are necessary. Where there is interference,the heater required will depend upon the oil cooler and exhaust configuration. Various installation options are shown here. Also see alternate installation below. Engine may accept oil pan heaters 8609683, 8609659, or 8609713 (requires 1" x 1/2" reducer bushing to reduce port size).
See page 83 for oil pan heater specifications.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650), Plate Gasket (8603359)

Engines without FULL FLOW COOLING – replaces Front or Rear water jacket access plate.



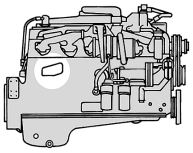
BIG CAM III, IV, New BIG CAM IV, 88NT & N14 install here



BIG CAM IV with heater hose connection to rear plate & pre-88NT engines install here

N Series, Big Cam IV, New Big Cam IV, 88NT Alternate installation
Engines with one heater hose connection (1/2" NPT) to Rear plate.

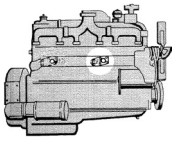
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601526	1500	120	Plate	Immersion	3600008



Installation Information: Replaces Rear access plate. Heater includes 1/2" NPT port for hose connection. **Available Service Parts:** Hex Nut (8602999), Element Gasket (8603650), Plate Gasket (8603359)

New Big Cam IV
Forward plate installations with reverse bolt pattern – without single-pass oil cooler 1986-1988

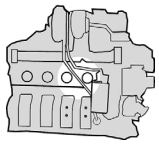
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600627	1500	120	Plate	Immersion	3600008
8600651	1500	**240**	Plate	Immersion	8608377



Installation Information: Replaces forward side plate. **Available Service Parts:** Hex Nut (8602999), Plate Gasket (8603715).

QSB (4.5L) **Hot Side** 2005-2006, **ISB 02 200 HP**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500096	750	120	58mm	Freeze Plug	3600008



Installation Information: Replace freeze plug opening on Right front side of engine. Must have threaded bolt holes in block for attaching mounting plate.

Signature 600, ISX, APEX

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500108	1500	**240**	Plate	Immersion	8608377

Installation Information: Remove flat 2 – bolt cover on right side of block, near rear of water inlet casting. Install with element pointing toward front of engine.

Signature 600, ISX (Pre 2007), **QSX** (15L-915 CID)

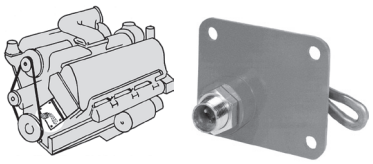
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500038	1500	120	Plate	Immersion	3600008

Installation Information: Install in Right Side (RS).

CUMMINS – CONTINUED

V6-140 (352 CID), **V6-155** (378 CID)
(Engines without alternator mounted over water jacket access plate)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601763	1000	120	Plate	Immersion	3600008
8601801	1000	**240**	Plate	Immersion	8608377
8601844	1500	120	Plate	Immersion	3600008



Installation Information: Replaces water jacket access plate on front left cylinder bank.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

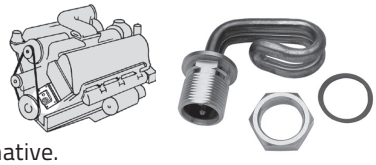
V903, VT903, VT350, Formula VT300 (903 CID) (Alternate installation)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601267	1500	120	3/4" NPT	Immersion	3600008
8601054	1500	**240**	3/4" NPT	Immersion	8608377

Installation Information: Replaces 3/4" pipe plug at bottom rear of oil cooler.
Check engine to be sure 3/4" pipe plug is available on engine before proceeding.

V903, VT903, VT350, Formula VT300 (903 CID)
V6-195, 200, 215, 280 (588 CID)
V8-235, 265, 300, 370 (785 CID)**, 350 & 430** (950 CID)
(Replacement element only)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8607605	1500	120	N/A	Immersion	3600008



Installation Information: Replacement element only. Circulation heater is acceptable alternative.

X12 Diesel (2018 and newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500168	1500	120	27mm	Immersion	N/A

Installation Information: Install in Right Front (RF)

X12 Gas (2018 and newer)**, X15** (2018 and newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500107	1500	120	26mm	Immersion	3600008

Installation Information: Install in Right Side (RS)

DAVID BROWN

All 900, 995, 1200, 1212

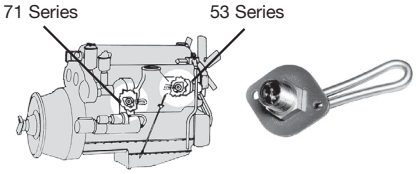
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100066	400	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Left Center (LC). Point element 12 o'clock.

DETROIT DIESEL

3-53, 4-53, 3-71, 4-71
Engines without water cooled compressor

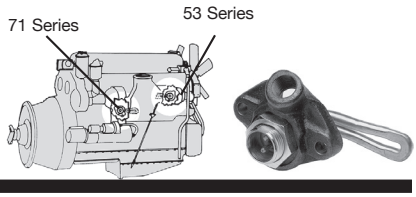
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600295	750	120	Plate	Immersion	3600008
8600368	1000	120	Plate	Immersion	3600008



Installation Information: Replaces water jacket access plate on side of engine.
Note: Do not use 1000 watt heater on 3-53, 4-53, or 3-71 engines.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

3-53, 4-53, 3-71, 4-71
Engines with water cooled compressor

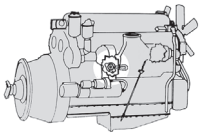
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601291	750	120	Plate	Immersion	3600008
8601305	1000	120	Plate	Immersion	3600008



Installation Information: Replaces water jacket access plate on side of engine.
Note: Do not use 1000 watt heater on 3-53, 4-53, or 3-71 engines.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

6-71
Engines without water cooled compressor

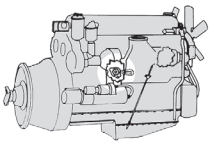
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600368	1000	120	Plate	Immersion	3600008
8600422	1500	120	Plate	Immersion	3600008



Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

6-71
Engines with water cooled compressor

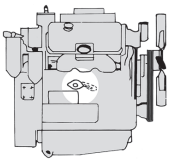
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601305	1000	120	Plate	Immersion	3600008
8601372	1500	120	Plate	Immersion	3600008



Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

6V-53
Vehicles with or without automatic transmission

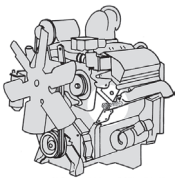
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500021	1000	120	Plate	Immersion	3600008



Installation Information: Replaces water jacket access plate on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

6V-71, 8V-71 Vehicles without power steering and/or air conditioning

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600090	1000	120	1" NPT	Immersion	3600008
8600120	1000	**240**	1" NPT	Immersion	8608377
8605556	1500	120	1" NPT	Immersion	3600008
8600260	1500	**240**	1" NPT	Immersion	8608377



Installation Information: Replaces 1" pipe plug on front face of Left cylinder bank.

8V-53
1500W or 2250W Circulation Heater Recommended – See circulation heater section of this catalog

8.2 Litre (501 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008
8600996	1000	**240**	3/4" NPT	Immersion	8608377

Installation Information: Replaces 3/4" pipe plug on Right front side of engine.

D638 (3.8L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8604967	600	120	3/4" NPT	Immersion	N/A

Installation Information: Install in Right Side (RS) of engine.

DD5, DD8 (2016 & newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500158	750	120	27mm	Immersion	

DD13, DD15, DD16 (2008 & Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500095	1500	120	27mm	Immersion	3600008

Installation Information: Right side. M27 port in the oil module below intake.

Series 30

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100045	600	120	1-1/2"	Freeze Plug	3600007

Installation Information: Install in Right Side (RS). Point element UP.

Series 40 (466 CID)
Engines manufactured prior to September 1993

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8608512	1250	120	1-1/4"	Freeze Plug	3600008
8608539	1250	**240**	1-1/4"	Freeze Plug	8608377

Installation Information: Replaces 3RD or 4TH freeze plug on Left side of engine.
Available Service Parts: O-ring and clamp device (3500004)

Series 40 (6.7L 408 CID, 7.6L 466 CID, 8.7L 530 CID)
Engines manufactured after August 1993

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500044	1250	120	1-1/4"	Freeze Plug	3600008
8608911	1250	**240**	1-1/4"	Freeze Plug	8608377

Installation Information: Replaces 1-1/4" plug in boss on Left side of engine.

Series 50 (Except low-mount turbo)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600090	1000	120	1" NPT	Immersion	3600008
8605556	1500	120	1" NPT	Immersion	3600008
8603243	300	120	3/4" NPT	Oil Pan	3600008

Installation Information: Replaces 1" NPT plug in oil cooler casting.

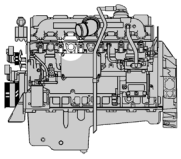
Series 50
(Including low-mount turbo)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500007	1000	120	1-1/2"	Freeze Plug	3600008

Installation Information: Install in core plug behind oil cooler. Engine may also accept oil pan heater 8603243. See threaded immersion heater page for specifications.

Series 55

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500008	1500	120	Plate	Immersion	3600008
3500009	1500	**240**	Plate	Immersion	8608377



Installation Information: Replaces water jacket access plate on Left side of engine.

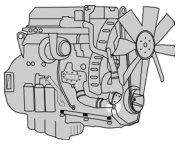
Series 60 (2007 & Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500077	1500	120	1-3/16" STOR	Immersion	3600008

Installation Information: Upper hex port of oil cooler. Right side of engine.

Series 60 (11.1L 677 CID, 12.7L 775 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8605556	1500	120	1" NPT	Immersion	3600008
8600260	1500	**240**	1" NPT	Immersion	8608377
8605580	2000	120	1" NPT	Immersion	8608652

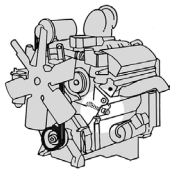


Installation Information: Pre-1991 engines – Replaces 1" NPT plug in water pump outlet casting on Right front side of engine. 1991 & Newer replaces 1" pipe plug near top front of oil cooler. May also accept oil pan heater 8603243. See threaded immersion heater page for specifications.

DETROIT DIESEL – CONTINUED

Silver Series
6V-92, 8V-92
6V-71, 8V-71, 12V-71, 16V-71, 6V-92, 8V-92, 12V-92, 16V-92
Engines **without** air conditioner compressor mounted next to water jacket access plate

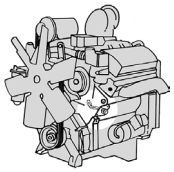
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601631	1000	120	Plate	Immersion	3600008
8601704	1500	120	Plate	Immersion	3600008
8601739	1500	240	Plate	Immersion	8608377



Installation Information: Replaces water jacket access plate on Left front cylinder bank.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650), Plate Gasket (8606854).

Silver Series
6V-71, 8V-71, 12V-71, 16V-71, 6V-92, 8V-92, 12V-92, 16V-92
Engines **with** air conditioner compressor mounted next to water jacket access plate, except for GMC General with 92 Series engine

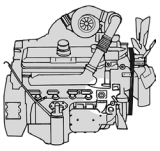
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601658	1000	120	Plate	Immersion	3600008
8601712	1500	120	Plate	Immersion	3600008



Installation Information: Replaces water jacket access plate on Left front cylinder bank.
Available Service Parts: Hex Nut (8602999), Plate Gasket (8606854).

Silver Series (6V-92, 8V-92), 12V-71, 16V-71, 12V-92, 16V-92, GMC General (with 92 Series engine) (Alternate installation)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008
8602514	1000	**240**	3/4" NPT	Immersion	8608377
8602611	1500	120	3/4" NPT	Immersion	3600008
8602573	1500	**240**	3/4" NPT	Immersion	8608377



Installation Information: Replaces 3/4" pipe plug in oil cooler elbow on right side of engine. Check engine carefully – 3/4" pipe plug not available on all engines.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

DEUTZ

1012, 1013, 2013

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500019	750	120	Plate	Immersion	3600020

Installation Information: Install in oil cooler housing.
Check engine – heater port not available on all engines.

BF4L913 (4 cyl.)
(Oil pan heater only)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8603170	325	120	48mm THUD	Immersion	3600024

Installation Information: Replaces 48mm plug in oil pan. Check engine carefully – 48mm plug not available on all oil pans. **Available Service Parts:** Hex Nut (8602999), Element Gasket (8603650)

F3L912, F3L913 (3 cyl)
(Oil pan heater only)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8603146	150	120	48mm THUD	Immersion	3600024

Installation Information: Replaces 48mm plug in oil pan. Check engine carefully – 48mm plug not available on all oil pans. **Available Service Parts:** Hex Nut (8602999), Element Gasket (8603650)

DEUTZ – CONTINUED

F6L913, BF6L913 (6 cyl.)
(Oil pan heater only)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8603170	325	120	48mm THUD	Immersion	3600024

Installation Information: Dual kit – purchase two heaters and cordsets. Replaces 48mm plugs in oil pan. Check engine carefully – 48mm plugs not available on all oil pans. **Available Service Parts:** Hex Nut (8602999), Element Gasket (8603650)

FAHR

1012, 1013, 2013

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500055	750	120	Plate	Immersion	3600008

Installation Information: Install in oil cooler housing. Check engine – heater port not available on all engines. Available on all oil pans. **Available Service Parts:** Hex Nut (8602999), Element Gasket (8603650)

FIAT

8060, 8061, 8065 (5.5L 335 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600333	1000	120	42mm THUD	Immersion	3600008

Installation Information: Install in 42mm threaded opening on Right rear of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

8360, 8361 (8.1L 494 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600090	1000	120	1" NPT	Immersion	3600008
8600120	1000	**240**	1" NPT	Immersion	8608377

Installation Information: Replaces 1" pipe plug in coolant elbow casting on Front left side.

FORD

091PV (91 CID 4 cyl.)**, GSG417 (**104 CID 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100036	400	120	1-1/2"	Freeze Plug	3600003

Installation Information: Install in Right front face of cylinder head. Point element UP or DOWN.

134, 172, 192 CID (Engines used in tractors)
NAA, NAB, 500, 600, 700; 800, 900, 901, 1800 G/D;
2000, 2100, 4000 G/D, 4110D, 4120, 4121

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100087	600	120	2.06"	Freeze Plug	3600006

Installation Information: Install in any Left Side (LS). Point element UP or DOWN.

401 CID (V-8), **477 CID** (V-8), **534 CID** (V-8)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601518	1000	120	1-3/4"	Freeze Plug	3600008

Installation Information: Install in any 1-3/4" freeze plug.

401 CID (6.6L), **474 CID** (7.8L)
(Engines manufactured in August 1989 and later featuring plate type heater)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500048	1000	120	Plate	Immersion	3600008
8606331	1250	120	Plate	Immersion	3600008

Installation Information: Replaces 2ND freeze plug from rear – right side.
(Diameter of element in plate 1.5")

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401 CID (6.6L), **474 CID** (7.8L)
(Engines manufactured prior to August 1989 featuring freeze plug type heater)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
2207044	1000	120	1-1/2"	Freeze Plug	3600008
8601984	1500	120	1-1/2"	Freeze Plug	3600008
8601968	1500	**240**	1-1/2"	Freeze Plug	8608377

Installation Information: Replaces 2ND freeze plug from rear – right side.

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421 CID V-8 (6.9L), **445 CID V-8** (7.3L)
(Except Navistar T444E engine)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100043	1000	120	1-1/2"	Freeze Plug	3600010

Installation Information: Replaces freeze plug on Right rear of engine. Point element 11 o'clock.

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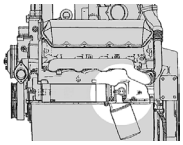
445 CID V-8 – Navistar T444E engine (7.3L)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008
8600996	1000	**240**	3/4" NPT	Immersion	8608377
8602611	1500	120	3/4" NPT	Immersion	3600008

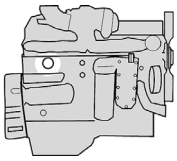
Installation Information: Replaces 3/4" NPT threaded plug in oil cooler.

1060 (5.9L 359 CID 6 cyl. – Cummins B Series)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500030	750	120	58mm	Freeze Plug	3600008
8601666	750	**240**	58mm	Freeze Plug	8608377

Installation Information: Replaces freeze plug on Right side of engine.
Available Service Parts: O-ring & clamp device kit (3500002).

1460 (8.3L 505 6 cyl. – Cummins C Series)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8601860	1000	120	58mm	Freeze Plug	3600008
8601852	1000	**240**	58mm	Freeze Plug	8608377

Installation Information: Replaces freeze plug on Right rear side of engine.
Available Service Parts: O-ring & clamp device kit (3500002)

2000, 3000, 4000, 5000, 6000 (3, 4, 6 cyl.)
(Engines manufactured up to 1967)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200004	600	120	1-3/4"	LRHH	3600047

Installation Information: Lower radiator hose heater. Circulation heater is acceptable alternative.

3000, 4000, 5000, 8000, 9000 Series
(Engines manufactured 1968-1970)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100065	600	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in 4TH & 5TH Right Side (RS). Two heaters required. Point element DOWN. Circulation heater or LRHH are acceptable alternative.

3000, 4000, 5000, 7000, 8000, 9000 Series
(Engines manufactured in 1971 and later)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100133	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Install in 4TH and 5TH Right Side (RS). Two heaters are required. Point element DOWN. Circulation heater or LRHH are acceptable alternatives.

BSD666 (401 CID 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100133	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Install in 4TH and 5TH Right side. Point element DOWN. Two heaters are recommended.

CSG649 (300 CID 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100054	600	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install 2ND Right Side. Point element UP.

DSD & ESD442 (254 CID 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100061	600	120	1-5/8"	Freeze Plug	3600036

Installation Information: Install in Left Center (LC). Point element UP.

DSD & ESD659 (362 CID 6 cyl.), **660** (363 CID 6 cyl.), **680** (380 CID 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100061	600	120	1-5/8"	Freeze Plug	3600036

Installation Information: Install 2ND and 3RD Left side. Point element UP or DOWN. Two heaters are recommended.

KSG411 (67 CID 4 cyl.)**, KSG416** (98 CID 4 cyl.)
(Engines with distributor)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100053	400	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in Left Side (LS). Point element UP/DOWN.

LSG423 (140 CID 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100039	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Install in Right Rear (RR). Point element UP/DOWN.

LRG423 (140 CID 4 cyl.), **LRG425** (152 CID 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100084	400	120	1-1/2"	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element 3 o'clock.

FORD – CONTINUED

LSG633 (200 CID 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100065	600	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Right Front (RF) or Right Center (RC). Point element UP or DOWN.

LSG861 (370 CID V-8), **LSG870** (429 CID V-8), **LSG875** (460 CID V-8)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100039	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Install in Right Side (RS) or Left Side (LS). Point element UP.

SSD655 (335 CID 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600333	1000	120	42mm THUD	Immersion	3600008

Installation Information: Install in Right Rear (RR). Point element UP/DOWN.

VSG411 (67 CID 4 cyl.)**, VSG413** (79 CID 4 cyl.)
(Engines without distributor)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100085	400	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in back of head. Point element 3 o'clock.

WSG858 (351W V-8)**, 255** (V-8), 302 (V-8)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100039	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR) or Right Rear (RR). Point element DOWN.

HERCULES

G1600 (2.7L 163 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100088	400	120	2.135"	Freeze Plug	3600006

Installation Information: Install in Left Center (LC) or Left Rear (LR). Point element UP or DOWN.

G/D2300, DT3.7 (226 CID), **5.8L** (339 CID), **G/D3400** (1983+ engines), **GT & DT 5.6**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100027	600	120	35mm	Freeze Plug	3600006

Installation Information: Replace freeze plug on Right side of engine.

G/D3400 & 3400T (339 CID)
(Engines manufactured up to 1982)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100039	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Replaces freeze plug on Right side of engine.

G/D4800 (7.8L 478 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500025	1000	120	2"	Freeze Plug	3600024

Installation Information: Replaces freeze plug on Right side – near rear.

HINO

J Series: J05C (5.3L 4 cyl.), **J08C** (8.0L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500018	1000	120	50mm	Freeze Plug	3600008

Installation Information: Replace core plug on Right front side of engine.

W04C, W06E, H06C-T, H07C-B (3.8L, 5.7L, 6.0L, 6.4L, 6.7L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008
8600988	1000	**240**	3/4" NPT	Immersion	8608377

Installation Information: Replaces 3/4" plug in water transfer casting/oil cooler cover.

INTERNATIONAL / NAVISTAR

421 CID (6.9L), **445 CID** (7.3L)
(Not for use with T444E engine)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100043	1000	120	1-1/2"	Freeze Plug	3600010

Installation Information: Replaces freeze plug on Right rear of engine.
Point element 11 o'clock. **Available Service Parts:** O-ring and clamp device (3500005)

460, 560, 660, 706, TD62, TD92 (All models)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100061	600	120	1-5/8"	Freeze Plug	3600036

Installation Information: Install in 3RD Right Side (RS). Point element DOWN, if no interference w/throttle rod. Use 12 o'clock for other installations.
Circulation heater or LRHH are acceptable alternatives.

504 (153G), **606** (221G)
Engines manufactured in 1964 and later
(Can be used on gas or diesel engines)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100054	600	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in Right Center (RC). Point element DOWN.
Circulation heater is acceptable alternative.

806, 1206, 1256 (1963-67), **856, C152, C175, C200, C221, C263, C282, C291, C301, D166, D188, D236, D282, D301, D361, D407, DT407**
(Can be used on gas or diesel engines)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100061	600	120	1-5/8"	Freeze Plug	3600036

Installation Information: Install in 1ST, 2ND, or 5TH freeze plug on Right side. Point element DOWN.
Circulation Heater Recommended – See circulation heater section of this catalog or LRHH are acceptable alternatives.

817 (817 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600759	1500	120	1-1/2" NPT	Immersion	3600008

Installation Information: Replace 1-1/2" pipe plug on side of engine.

966, 1066, 1086, 1466

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Installs in 3RD and 4TH Left Side (LS). Two heaters required. Circulation heater is acceptable alternative.

966, 1066, 1086, 1466
(Alternate installation)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8608512	1250	120	1-1/4"	Freeze Plug	3600008

Installation Information: Install in Left side.

Cub Lo-Boy

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200004	600	120	1-3/4"	LRHH	3600047

Installation Information: Lower radiator hose heater. Circulation heater is acceptable alternative.

D150, D170, D190 (461 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100038	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Replaces any freeze plug. Point element UP.

D312, D414, DT414, D436, DT436, DTA466
(Engines manufactured prior to 1994)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8608512	1250	120	1-1/4"	Freeze Plug	3600008
8608539	1250	**240**	1-1/4"	Freeze Plug	8608377

Installation Information: Replaces 3RD or 4TH freeze plug on Left side of engine.

D550 (549 CID), **9L** (551 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100044	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Replace any freeze plug. Point element between cylinders.

DT360, DTA360

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8608601	1000	120	1-1/4"	Freeze Plug	3600008

Installation Information: Replace 3RD or 4TH freeze plug on Left side of engine.

DT466 High Torque, DT466, DT466E, HT530, DT530 (2001-2003)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500054	1250	120	1-1/4"	Immersion	3600008

Installation Information: Left side, protruding boss above engine oil dipstick. Element direction 12 o'clock

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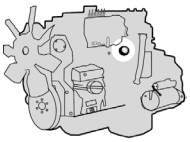
DT466 & DT570 (2004-2006)
DT408, DT466, DT466E, 530, 570 (1994-2000)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500044	1250	120	1-1/4"	Freeze Plug	3600008
8608911	1250	**240**	1-1/4"	Freeze Plug	8608377

Installation Information: Replaces 1-1/4" freeze plug in boss on Left side of engine.

MaxxForce 5 & 7 (2007 & Newer)

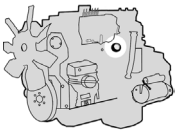
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500069	1000	120	27mm THD	Immersion	3600008

Installation Information: Right Rear (RR).

MaxxForce 9 & 10 MaxxForce DT (2007 & Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500163	1250	120	1-1/4"	Freeze Plug	3600008

Installation Information: Replaces 1-1/4" freeze plug in boss on Left side of engine.



MaxxForce 11 & 13

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500095	1500	120	27mm THD	Immersion	3600008

Installation Information: Lower right front.

MaxxForce 15

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500111	1500	120	1-3/16"-12	Immersion	3600008

Installation Information: Right Side (RS).

MV, 404, 446, 485 engines

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100044	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Install in any Left Side (LS) or Right Side (RS).
Point element between cylinders. Circulation heater is acceptable alternative.

Neuss Engine (179, 206, 239, 246, 268, 310, 358 CID)

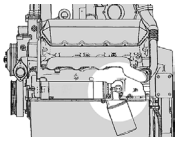
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500012	1000	120	1-1/4"	Freeze Plug	3600024

Installation Information: Install in Left Side (LS). Circulation heater is acceptable alternative.

T444E (7.3L V-8)
(Engines manufactured in 1994 and later)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008
8600996	1000	**240**	3/4" NPT	Immersion	8608377

Installation Information: Replaces 3/4" threaded plug in oil cooler.



VT275, VT365 (2003-2010)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500069	1000	120	27mm THD	Immersion	3600008

Installation Information: Right Rear (RR).

V800 (798 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8605556	1500	120	1" NPT	Immersion	3600008
8600260	1500	**240**	1" NPT	Immersion	8608377

Installation Information: Replace 1" pipe plug in oil cooler bonnet.

ISUZU

3LD1 & 3LD2 (3 cyl.), **4LE1 & 4LE2** (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100094	400	120	35mm	Freeze Plug	3600005

Installation Information: Install in any Left side. Point element 9 o'clock.

3LB1 (3 cyl.), **4LC1** (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100098	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in any Left side. Point element 9 o'clock.

4BD1 (3.9L 4 cyl.), **6BD1** (5.8L 6 cyl.), **6BG1** (6.5L 6 cyl.), **6HE1** (7.1L 6 cyl.), **6HK1** (7.8L 6 cyl.), **6SA1** (8.4L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100089	600	120	1" NPT	Immersion	3600006

Installation Information: Installs in Left rear 1" threaded opening, except for 6SA1, which installs in Right side 1" threaded opening. Two heaters recommended for 6SA1.

4BD1 (3.9L 4 cyl.), **6BD1** (5.8L 6 cyl.), **6BG1** (6.5L 6 cyl.), **6HK1** (7.8L 6 cyl.), **6SA1** (8.4L 6 cyl.) **QD-100** (3.9L), **QD-145** (5.8L), **4BGI, 4BGIT, 4BGITC**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100065	600	120	45mm	Freeze Plug	3600006

Installation Information: Replaces 45mm freeze plug in the back of head. Install element 1 o'clock.

4FB1 (111 CID 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100018	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Right Rear (RR). Point element UP.

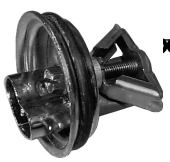
4H Series

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500151	600	120	45mm	Freeze Plug	3600008

Installation Information: Replace 45mm core plug between #1 & #2 cylinder near alternator. Point element DOWN.

4JB1, 4JG (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100069	400	120	45mm	Freeze Plug	3600006



Installation Information: Install in Left Rear (LR). Point element 6 o'clock.

6SA1-T, 6SD1, QD-170 & QD-170T (8.4L 6 cyl.)

Circulation Heater Recommended – See circulation heater section of this catalog

E-120 (733 CID 6 cyl.)**, 6RB-1** (839 CID 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602220	1250	120	45mm	Freeze Plug	3600008

Installation Information: Replace 45mm plug on Rear face or back – right side. Point element DOWN.

ISUZU – CONTINUED

QD-27 (2AB1), **QT-15** (2KC1), **2AA1** (2 Cylinder)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100067	400	120	45mm	Freeze Plug	3600006

Installation Information: All except QT-15: Install Left Side (LS). Point element UP.
QT-15: Install in back of head. Point element 10 o'clock.

QD-40 (3AB1 108 CID) (3 Cylinder)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100068	400	120	45mm	Freeze Plug	3600006

Installation Information: Install in Left Side (LS). Point element 6 o'clock.

QD-60, C240, C201, C223 (144, 137 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100068	400	120	45mm	Freeze Plug	3600006

Installation Information: Install in Left Side (LS). Position element 6 o'clock.

QD-90, 4BB1 (219 CID 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100065	600	120	45mm	Freeze Plug	3600006

Installation Information: Install in back of head. Point element 1 o'clock. Not for use on Isuzu 4JJ engines.

QT-23 (3KC-1 87 CID), **QT-35** (3KR-1-60 87 CID), **3AA** (3 Cylinder)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100067	400	120	45mm	Freeze Plug	3600006

Installation Information: All except 3AA: Install in back of head. Point element 10 o'clock.
3AA: Install in Left Side (LS). Point element 6 o'clock.

QT-23 (3KC-1)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100026	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 9 o'clock.

QD-130 (6BB1 329 CID 6 cyl.)

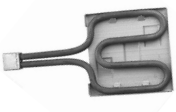
Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100065	600	120	45mm	Freeze Plug	3600006

Installation Information: Install in back of head. Point element 1 o'clock. Not for use on Isuzu 4JJ engines.

IVECO

Z100 (F5L-912 Deutz air cooled engine)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3400014	500	120	6" x 6" (15.2cm²)	Clamp-On	3600001



Installation Information: Clamp-On type heater. Engine may also use M22 x 1.5 threaded oil pan heater.

Z110, Z120, Z220, Z340 (335 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600333	1000	120	42mm x 1.5	Immersion	3600008

Installation Information: Install in 42mm threaded opening on Right rear of engine.
Available Service Parts: Hex Nut (8602999), Plate Gasket (8603650)

50, 60, 70, 730 Series A, B, D, G

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in bottom of water jacket. Circulation heater is acceptable alternative.

1020, 2020, 3010, 3020, 4000, 4010, 4020

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200004	600	120	1-3/4"	LRHH	3600047

Installation Information: Lower radiator hose heater. Circulation heater is acceptable alternative.

2010

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200003	600	120	1-1/2"	LRHH	3600047

Installation Information: Lower radiator hose heater. Circulation heater is acceptable alternative.

3029

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Replaces 3/4" pipe plug on rear face of engine.

4230, 4430, 4440, 4630, 6030, 7020, 7520

(Tractors manufactured prior to 1976 without large hex plug)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602050	1000	120	2"	Freeze Plug	3600024

Installation Information: Install in Left Side (LS). Point element UP.
Circulation heater is acceptable alternative.

6105, 6125

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500013	1500	120	1" NPT	Immersion	3600008

Installation Information: Installs in oil cooler housing.

6404, 6466, 6619

(Engines featuring smooth bore core hole – engines manufactured prior to 1976)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602050	1000	120	2"	Freeze Plug	3600024

Installation Information: Replace 2" diameter core hole on Left side of engine.

Power Tech: 4045, 6068

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500020	1000	120	1-5/8" THUD	Immersion	3600008

Installation Information: Replace 1-5/8" threaded plug on Right side of engine.

Series 250 PowerTech: 4024 PowerTech (2.4L, 4 Cyl.) & 5030 PowerTech (3.0L, 5 Cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500089	600	120	1.25"	Freeze Plug	N/A

Installation Information: Replace 1.25" diameter core hole on Left side of engine, near the starter.

JOHN DEERE – CONTINUED

Series 300 (3029, etc.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500045	1000	120	1" NPT	Immersion	3600008
3500152	1000	**240**	1" NPT	Immersion	8608377

Installation Information: Install in Left rear face of block.

Series 300: 3164, 3179, 4039, 4045, 4219, 4239, 4276, 6059, 6068, 6329, 6359, 6414

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8603596	1000	120	3/4" NPT	Immersion	3600024

Installation Information: Replace 3/4" pipe plug on rear face of engine. Some engines (manufactured in 1987 and later) may require a 1" x 3/4" reducer bushing.

Series 300: 3164, 4039, 4045, 4219, 4239, 4276, 6329, 6359, 6414, 6059, 6068
Series 400: 6076, 6081, 6101, 6414, 6466, 6619

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500029	1000	120	1-5/8" THUD	Immersion	3600008

Installation Information: Replaces 1-5/8" threaded plug on Left side of engine.

Series 350 PowerTech Plus iT4 (Interim Tier 4)**: 4045 PowerTech Plus iT4** (4.5L, 4 Cyl.) **& 6068 PowerTech Plus iT4** (6.8L, 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500069	1000	120	27mm	Immersion	3600008

Installation Information: Right Rear (RR).

All tractors (manufactured 1977 and later featuring large hex plug on side of engine)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500029	1000	120	1-5/8" THUD	Immersion	3600008

Installation Information: Install in Left Side (LS). Point element UP. Circulation heater is acceptable alternative.

KOMATSU

4D95 (2.9L 164 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100046	400	120	40mm	Freeze Plug	3600006

Installation Information: Replace 40mm core plug on Left rear of engine.
Note: May not fit all engines due to block thickness. Maximum 5/18" (15.8mm) thickness.

SA6D107

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100046	400	120	40mm	Freeze Plug	3600006

Installation Information: Replace 40mm core plug.

SA6D125 (624 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600880	1500	120	1-3/4" THD	Immersion	3600008
8600813	1000	120	1-3/4" THD	Immersion	3600008

Installation Information: Replaces threaded core plug on Right side of engine.

S4D106-1

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Freeze Plug	3600001

Installation Information: Left Center (LC)

KOMATSU – CONTINUED

S6D-95L & SA6D-95L (298 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100082	600	120	40mm	Freeze Plug	3600006
3100010	600	120	30mm	Freeze Plug	3600005

Installation Information: 3100082: Install in Left Rear (LR). Point element UP.
3100010: Insert at 3 o'clock and rotate to 4 o'clock.

S6D140, SA6D140
(Example: WA500 loader)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600880	1500	120	1-3/4" THD	Immersion	3600008

Installation Information: 2001 and newer use 8600880: Replaces threaded core plug on right side of engine.

S6D170, SA6D170
(Example: WA600 loader)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602301	1500	120	Plate	Immersion	3600008

Installation Information: Install in rectangular water jacket access plate (6-bolt) located on the Right side of engine – rear. Requires removal of engine side plate and hole to be drilled for heater installation.

KUBOTA

B Series
(Except 2 cylinder)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in Right Front (RF). Use 1" x 3/4" pipe bushing.

L Series

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in Right Front (RF). Use 1" x 3/4" pipe bushing.

M Series (3 & 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in front.

D600, D640, WG600, D662, D722*, DG750, DF750, WG750
(Super Mini/New Super Mini 3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100099	400	120	30mm	Freeze Plug	3600004

Installation Information: Install in back of head.

***Kubota D722:** use 3100099 on Tier 2 or older; use 3100132 on newer D722 (needs a pound in heater due to change in valve cover).

D650, D750, D850, DH850, D950 (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in Right Front (RF). Use 1" x 3/4" pipe bushing.

D850 – V1200 Models (70mm Stroke)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
2204320	400	115	35mm	Freeze Plug	3600083

Installation Information: Crankcase, inlet side under fuel injection pump, tapered head

05 Series Installation: Crankcase, exhaust side, threaded plug, tapered head

D1102, D1302, D1402, D1403, D1703, D1803, D2203, D2403 (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100025	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in back of head. Point element 2 o'clock.

D3000B, D3200B (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Immersion	3600001

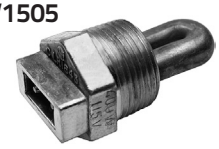
Installation Information: Install in front.

S2800 (6 cyl.)**, F2803** (5 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100025	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in back of head.

Super 5 Series: D905, DH905, D1005, DH1005, D1105, V1205, VH1205, V1305, VH1305, V1505



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Immersion	3600001

Installation Information: Install in Left Front (LF).

V800
(Super Mini/New Super Mini 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100099	400	120	30mm	Freeze Plug	3600004

Installation Information: Install in back of head.

V1100, VH1100, V1200 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Instructions: Install in Right Front (RF). Use 1" x 3/4" pipe bushing.

V1505

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600008

Installation Instructions: Install in open port closest to center of engine.

V1702, V1703, V1902, V1903, V2003, V2003T, V2203 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100025	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in back of head. Point element 2 o'clock.

KUBOTA – CONTINUED

V2607, V3307, V3600, V3800

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500120	400	120	1" NPT	Immersion	3600110

Installation Information: Replaces 1" NPT pipe plug.

V3300

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in Right Front (RF). Use 1" x 3/4" pipe bushing.

V4000B, V4300B (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Immersion	3600001

Installation Information: Install in front.

Z400, Z482, D722*
(Super Mini/New Super Mini 2 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100099	400	120	30mm	Freeze Plug	3600004

Installation Information: Install in back of head.

***Kubota D722:** use 3100099 on Tier 2 or older; use 3100132 on newer D722 (needs a pound in heater due to change in valve cover).

Z600 & ZH600
(Super Mini/New Super Mini 2 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install Right Front (RF). Use 1" x 3/4" pipe bushing.

Z602-D902-WG, DF, DG972, D722 (Newer than Tier 2)
(Super Mini 02 Series 73.6mm Stroke)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100132	400	120	30mm	Freeze Plug	3600083

Installation Information: Rear of cylinder head in rear frost plug hole, knock in type, tapered body

LISTER-PETTER

LPW Series (1994 & newer 56 CID 2 cyl., 85 CID 3 cyl., 113 CID 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100077	400	120	1-1/4"	Freeze Plug	3600004

Installation Information: Install between cylinders. Point element UP or DOWN.

LOMBARDINI

CHD Series: LDW1503, LDW1603 (3 cyl.)**, LDW2004, LDW2204, LDW2004T** (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100096	400	120	30mm	Freeze Plug	3600004

Installation Information: Install in Left Side (LS). Point element 3 or 9 o'clock.

LOMBARDINI – CONTINUED

LDW602, LDW702 (2 cyl.), **LDW903, LDW1003** (3 cyl.),
FOCS Series 1204, LDW1404, LDW1204T (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200002	375	120	1-1/4"	LRHH	3600047

Installation Information: Lower radiator hose heater.

MACK

865 Series, 866 & 1000 Series, EM9-400 (998 CID**), E9**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008
8600988	1000	**240**	3/4" NPT	Immersion	8608377
8601011	1500	120	3/4" NPT	Immersion	3600008
8601054	1500	**240**	3/4" NPT	Immersion	8608377

Installation Information: Installs in oil cooler casting. Two heaters are required.
Engine may also accept oil pan heater 8609683, 8609659, 8609713 (requires 1" x 1/2" bushing to reduce port size). See threaded immersion heater page for specifications.

ASET Engine Series (AI, AC + AMI) (12.0L) (2004-2006)
E7 & EM7 (12.0L) Example: EM7-300, E7-350

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8607206	1500	120	1-3/8"	Freeze Plug	3600008
8607184	1500	**240**	1-3/8"	Freeze Plug	8608377

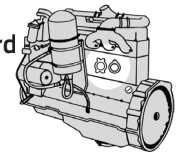
Installation Information: Replace 1-3/8" core plug on Right side of block – front or rear face.
Available Service Parts: O-Ring (3600059) 10 pack.

E3 Midliner (5.5L 335 CID, 6.2L)**, E5** (8.8L 537 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600317	1000	120	Plate	Immersion	3600008
8600384	1500	120	Plate	Immersion	3600008
8600414	1500	**240**	Plate	Immersion	8608377

Installation Information:
E3: Replace plug in rear face of block (MS200 serial numbers 1915 and higher).
E5: Install in oil cooler water feed pipe (MS300 serial numbers 60131 and higher).
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

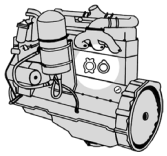
E6 (672 CID 6 cyl.)
(Engines with smooth bore freeze plug. Example: EM6300, E6350, EM6237)



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8609748	1500	120	1-3/4"	Freeze Plug	3600008
8609772	1500	**240**	1-3/4"	Freeze Plug	8608377

Installation Information: Replaces 1-3/4" freeze plug on side of engine.
Available Service Parts: O-ring and clamping device kit (3500003)

E6, EM6 (threaded freeze plug models manufactured prior to August 1981)
END465 (1957 & later)**, 711, EN438, 504, 707, 673, 675, 676 Series**



Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600813	1000	120	1-3/4"	Immersion	3600008
8600880	1500	120	1-3/4"	Immersion	3600008
8600910	1500	**240**	1-3/4"	Immersion	8608377

Installation Information: Replaces 1-3/4" threaded plug on side of engine.
Available Service Parts: Hex Nut (8602999), Element Gasket (8603650)

MACK – CONTINUED

END465 (1953-56)**, 672, 673, 711, EN438, 540, 707**

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600759	1500	120	1-1/2" NPT	Immersion	3600008

Installation Information: Replace 1-1/2" pipe plug on side of engine.

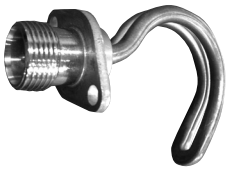
E-Tech (water pump mount)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500051	1500	120	1-3/8"	Immersion	3600008
3500052	1500	**240**	1-3/8"	Immersion	8608377
3500070	1500	120	1-3/8"	Immersion	8608652

Installation Information: Mount in water pump.
Available Service Parts: O-Ring (3600059) 10 Pack. 3500070 includes 84" weatherproof cord and receptacle.

MP7 (10.8L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500099	1000	120	25mm	Immersion	3600085
3500100	1500	120	25mm	Immersion	3600085
3500101	1500	**240**	25mm	Immersion	3600086



Installation Information: Right rear

MP8 (12.8L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500102	1500	**240**	25mm	Immersion	3600086
3500115	1500	120	25mm	Immersion	3600085
3500104	1000	120	25mm	Immersion	3600085

Installation Information: Right front, in coolant pipe.

MP10 (16.1L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500105	1500	120	62mm	Immersion	3600085
3500106	1000	120	62mm	Immersion	3600085

Installation Information: Right front

MASSEY FERGUSON

1100

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3200005	600	120	2"	LRHH	3600047

Installation Information: Lower radiator hose heater. Circulation heater is acceptable alternative.

445P, 333, 444, 555, 88

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100054	600	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in Right Front (RF). Circulation heater is acceptable alternative.

MF-35, 40, 50, 150, 203, 205, 235, 2135 & 2200 (AD3-152)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Install in Right Side (RS). Point element DOWN. Circulation heater is acceptable alternative.

MASSEY FERGUSON – CONTINUED

MF-65, 165, 255, 302, 304, 365 & 3165 (AD4-203)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in Left Side (LS). Circulation heater is acceptable alternative.

MF-90, 1080, 1085 & 285 (A4-300)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Replaces existing heater. Circulation heater is acceptable alternative.

MF-175, 180 & 265 (AD4-236)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Install in Left, 2ND from rear. Point element UP/DOWN. Circulation heater is acceptable alternative.

MF-1100, 1105, 1130 & 1135 (A6-354)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Install in Left, 2ND from rear. Point element UP. Circulation heater is acceptable alternative.

MF-1140 & MF-1145 (1120, 1125 – 1240, 1250, 1260 Mfg. prior to mid 90's before serial #E50101)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100066	400	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 3 o'clock.

MF-1150, 1155 (AV510, 540)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Immersion	3600001

Installation Information: Install one heater in each side (two heaters required). Circulation heater is acceptable alternative.

MF-3120, MF-3140

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100045	600	120	1-1/2"	Freeze Plug	3600007

Installation Information: Install in Right Rear (RR) or Right Front (RF). Point element 12 o'clock. Circulation heater is acceptable alternative.

MERCEDES

Freightliner Sprinter Van 2.7L (2009 & Older)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100105	500	120	38mm THD	Freeze Plug	N/A

Installation Information: Right Rear (RR). May need to heat existing plug to remove.

MBE4000 Series/OM460 (2003 & Older)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500080	1500	120	Plate	Immersion	3600008

Installation Information: 3500080 – Replace plate on right side (center). Point element 9 o'clock. Do not install on left side.

MERCEDES – CONTINUED

MBE4000 Series/OM460 9 (2004 & Newer)

Part No	Watt	Volt	Diameter	Type	Repl. Cord
3500082	1500	120	Plate	Immersion	3600008
3500083	1500	**240**	Plate	Immersion	8608377

Installation Information: Replaces plate on right side (center). Point element, 3 o'clock.

MBE900 Series: OM904 & OM906

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500046	1000	120	60mm	Immersion	3600008

Installation Information: Installation in Right Rear (RR) core hole. Point element DOWN, 6 o'clock.

MBE-HDEP 15.2 L

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500095	1500	120	27mm THD	Immersion	3600008

Installation Information: Installation in Right Rear (RR) core hole. Point element DOWN, 6 o'clock.

MINNEAPOLIS MOLINE

JetStar 3 (gas & diesel 206 CID), **U302** (gas 220 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500026	400	120	3/8" NPT	Immersion	N/A

Installation Information: Replaces existing heater. Circulation heater is acceptable alternative.

M602, M604, M670, G705, G706, G900, G1000

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100038	600	120	1-1/2"	Freeze Plug	3600006

Installation Information: Replaces existing heater. Circulation heater is acceptable alternative.

MITSUBISHI

4G32 & 4G33 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100016	400	120	35mm	Freeze Plug	3600006

Installation Information: 4G32: Install in Left Center (LC). Point element 9 o'clock.
4G33: Install in Left Center (LC). Point element UP.

4G52, 4G53, 4G54 (4 cyl. engines)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100071	400	120	50mm	Freeze Plug	3600006

Installation Information: Install in Right Center (RS). Point element 3 o'clock.

4G63 (2.0L 4 cyl.), **4G64** (2.4L 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100021	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 3 o'clock.

6G72 (3.0L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100055	600	120	1-5/8"	Freeze Plug	3600006

Installation Information: Install in Right Rear (RR). Point element 9 o'clock.

MITSUBISHI – CONTINUED

K3A & K3B (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100067	400	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Right Side (RS). Point element UP.

L3A (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100049	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Right Rear (RR). Point element 9 o'clock.

S4L2 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100078	400	120	35mm	Freeze Plug	3600006

Installation Information: Install Right Rear (RR). Point element 11 o'clock.

S6E & S6E2 (6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100078	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element 3 o'clock.

MITSUBISHI FUSO

4D31 (201 CID)**, 6D14** (400 CID)**, 6D31** (302 CID)**, 6D16** (460 CID)
4M40 (2835cc SOHC)**, 4D36** (3567cc)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8604967	600	120	3/4" NPT	Immersion	N/A

Installation Information: Replaces 3/4" threaded plug on Left rear side of engine.

MTU

Series 1100 (10.7L), **Series 1300** (12.8L), **Series 1500** (15.6L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500095	1500	120	27mm	Immersion	3600008

Note: 3500095 heater does not come with 3600008 cord. Order cord separately.

Installation Information: Left side of engine, M27x2 port to the right of oil filter housing below intake manifold.

MWM MURPHY

D225 & D226 Series (2, 3, 4, 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100071	400	120	50mm	Freeze Plug	3600006

Installation Information: Replaces any freeze plug on Right side. Point element UP or DOWN.

NISSAN

FD6 (5.6L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100049	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Right Front (RF). Point element 3 o'clock.

NISSAN – CONTINUED

H20, SD22, SD4-47 (2.2L)**, SD-25, A12** (1.2L)**, A15** (1.5L) (4 cyl. engines)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100016	400	120	35mm	Freeze Plug	3600006

Installation Information: H20: Install in Left Front (LF) or Left Rear (LR). Point element UP. **SD-22, SD4-47, SD-25:** Install in Left Front (LF). Point element DOWN. **A15** install Left Front (LR) or Left Rear (LR) and point element 12 o'clock.

H20-2, H25 (4 cyl. engines)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100019	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element 3 o'clock.

LD-28 (2.8L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100016	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in 5TH, Left side. Point element 12 o'clock.

P Series (4.0L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100049	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Right Front (RF).

SD-33 & SD6-72 (3.2L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100023	400	120	35mm	Freeze Plug	3600006
3100108	400	120	35mm	Freeze Plug – 12" Cord	3600036

Installation Information: Install in 2ND and 4TH Left side. Two heaters are required. Point element 12 o'clock.

TD42 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100090	600	120	35mm	Freeze Plug	3600006

Installation Information: Install in Right Center (RC). Remove 3-bolt plate.

Z24 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100048	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 12 o'clock.

OLIVER

All Models (except 1265, 1365, 1900)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500043	1000	120	3/4" NPT	Immersion	3600008

Installation Information: Install in cast elbow at front of engine – between radiator and engine block.

PACCAR

MX-13

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500107	1500	120	26mm	Plate	3600008

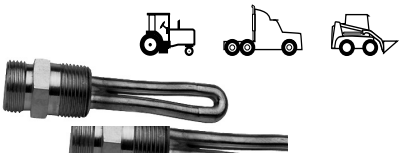
Installation Information: Right Front (RF).

PACCAR – CONTINUED

PX-6, PX-7 (6.7L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500022	750	120	3/4" NPT	Immersion	3600008

Installation Information: Installs in 3/4" NPT port to rear of oil cooler.



PX-8, PX-9 (8.3L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500032	1000	120	3/4" NPT	Immersion	3600008

Installation Information: Installs in upper 3/4" port to front of oil cooler.

PERKINS

3-152 (C Series 3 cyl.)**, 900 Series** (CN)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Install in Right Side (RS). Point element 6 o'clock.

4-108 (E Series 4 cyl.)**, 4-236** (LD 4 cyl.**), 4-248** (LF 4 cyl.)**, 4-248-2** (LG 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Install in Left, 2ND from rear. Point element UP or DOWN.

4-135 (GB Series 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100023	400	120	35mm	Freeze Plug	3600006
3100108	400	120	35mm	Freeze Plug – 12" Cord	3600036

Installation Information: Install in Right Side (RS). Point element UP or DOWN.

4-154 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100010	400	120	30mm	Freeze Plug	3600005

Installation Information: Install in Left Side (LS). Point element UP or DOWN.

4-203 (J Series 4 cyl.)
(Engines with no starter obstructions)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Freeze Plug	3600003

Installation Information: Install in Left Side (LS). Point element UP or DOWN.

4-236 (4 cyl.) (Engines with larger core hole)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100027	600	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left side – 2ND from rear.

6-354 (alternate)**, NA-120** (6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500027	750	120	Plate	Immersion	3600008

Installation Information: Install in back of head.

103.06 (KB 3 cyl.)**, 103.07** (KL 3 cyl.)**, 103.09** (KC 3 cyl.)**, 103.10** (KD 3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100016	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 6 o'clock.

103.12 (KG 3 cyl.)**, 103.13** (KH 3 cyl.)**, 103.15** (KE/KJ 3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100049	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 6 o'clock.

104.19 (KF/KK 4 cyl.)**, 104.22** (KR 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100049	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF). Point element 6 o'clock.

200 Series: 204.25 (GD 4 cyl.)**, 204.30** (GE 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100086	400	120	30mm	Freeze Plug	3600004

Installation Information: Install in Left Side (LS).

400 Series 4.41, T4.40, 4.0L

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100045	600	120	1-1/2"	Freeze Plug	3600007

Installation Information: Right Side (RS), point element UP.

540 (8 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Immersion	3600001

Installation Information: Install one heater in each side.

640 (Z Series 8 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8605556	1500	120	1" NPT	Immersion	3600008

Installation Information: Install in Left Rear (LR).

700 Series 704.30 (4A 4 cyl)**, 704.30T** (4C 4 cyl.)**, 704.26** (4C 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100101	400	120	50mm	Freeze Plug	3600006

Installation Information: Install in back of head. Point element 4 o'clock.

854

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100117	600	120	40mm	Freeze Plug	3600006

Installation Information: Left Center (LC).

1004 (A Series 4 cyl.) (D Series 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100045	600	120	1-1/2"	Freeze Plug	3600007

Installation Information: Install in Right Rear (RR) or Right Front (RF). Point element 12 o'clock.

PERKINS – CONTINUED

1006 (Y Series 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100045	600	120	1-1/2"	Freeze Plug	3600007

Installation Information: Install in Right Rear (RR), or Right Front (RF). Point element 12 o'clock.

1104 (C Series 4 cyl.) (D Series)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500084	750	120	1-1/4"	Freeze Plug	3600008

Installation Information: Only use 3500084 when replacing existing freeze plug. 3500145 is recommended for all new installations. Install 3500145 Left Center (LC). Install 3500084 Right Rear (RR) or Right Front (RF) with element at 3 o'clock.

1104 Tier 4, 1204

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500145	600	120	3/4" NPT	Immersion	3600100

Installation Information: Left Center (LC).

1106D, 1206E (2006 and Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500087	1000	120	1-1/4"	Immersion	3600008

Installation Information: Install in Right Rear (RR).

N Series: 4-300 (4 cyl.)**, 4-318** (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100093	400	120	3/4" NPT	Immersion	3600003

Installation Information: Install in Left Side (LS).

T Series: 6-354 (6 cyl.)**, 6-354.4** (4 cyl.)**, 6-372** (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100013	600	120	1-1/4"	Freeze Plug	3600022

Installation Information: Install in Right Rear (RR). Point element 12 o'clock.

PEUGEOT

1.6L

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500147	400	120	N/A	Manifold Plug	N/A

Installation Information: Replaces Manifold Drain Plug.

TOYOTA

2F (4.2L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100071	400	120	50mm	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element 9 o'clock.

3F

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100101	400	120	50mm	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element at 45° angle.

TOYOTA – CONTINUED

4Y (2.2L 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100019	400	120	35mm	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element 3 or 9 o'clock.

5R (1.9L 4 cyl.)**, 2J** (2.5L diesel)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100071	400	120	50mm	Freeze Plug	3600006

Installation Information: Install in Left Front (LF) or Left Rear (LR). Point element 12 o'clock.

UD TRUCK

FD35T (3.5L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100012	600	120	30mm	Freeze Plug	3600004

Installation Information: Replaces 30mm freeze plug on Right front of engine. Install element 3 o'clock.

FD46TA

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100103	400	120	40mm	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR) above fuel pump.

FE6 & FE6T (6.9L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602441	1000	120	40mm	Freeze Plug	3600008

Installation Information: Replaces 40mm freeze plug on Right side of engine – 2ND from rear. Install element 5 o'clock.

NE6 & NE6T (7.4L 6 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8602492	1500	120	50mm	Freeze Plug	3600008

Installation Information: Replaces 50mm freeze plug on Left rear of engine.

TD42T

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100090	600	120	35mm	Immersion	3600006

Installation Information: Install in Right Center (RC) of oil cooler. Remove 3-hole plate.

VOLKSWAGEN

1588cc (049.6 & 068.5 4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100034	400	120	36.5mm	Freeze Plug	3600016

Installation Information: Install in Right Center (RC). Point element 6 o'clock.

VOLVO

D11 (10.8L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500099	1000	120	25mm	Immersion	3600085
3500100	1500	120	25mm	Immersion	3600085
3500101	1500	**240**	25mm	Immersion	3600086

Installation Information: Right Rear (Contact Volvo dealer for Replacement O'Ring P/N 975664).

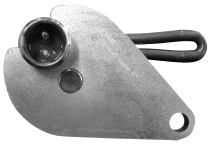
D13 (12.8L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500102	1500	**240**	25mm	Immersion	3600086
3500115	1500	120	25mm	Immersion	3600085
3500104	1000	120	25mm	Immersion	3600085

Installation Information: Right Front (RF) in coolant pipe.
(Contact Volvo dealer for Replacement O-ring (975664).

D16 (16.1L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500105	1500	120	62mm	Immersion	3600085
3500106	1000	120	62mm	Immersion	3600085



Installation Information: Right front

VE-D7

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500041	1500	120	1-3/4"-18	Immersion	3600008

Installation Information: Replace plug on Left Rear of engine. Reuse existing seal. Point element at 1 o'clock.

VED-12 (2002 & Newer)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500090	1000	120	Plate	Immersion	3600008
3500091	1500	120	Plate	Immersion	3600008

Installation Information: Mount below turbocharger at the Right Center (RC) of engine.

VED-12 (Engines manufactured prior to 2002)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500039	1000	120	Plate	Immersion	3600008
8607702	1500	120	Plate	Immersion	3600008

Installation Information: Mount below turbocharger at the Right Center (RC) of engine.

TD60 & TD61 (334 CID)**, TD70 & TD71** (409 CID)**, TD73** (427 CID)**,**
TD100 & TD101, VE10 (586 CID)**, TD120, TD121, TD122, TD123** (732 CID)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
8600252	1000	120	44mm	Immersion	3600008
8600287	1500	120	44mm	Immersion	3600008
8600309	1500	**240**	44mm	Immersion	8608377

Installation Information: Replaces 44mm threaded plug on Left Front (LF) of engine. Point element at 4 or 5 o'clock.

YANMAR

3T72HLE (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Immersion	3600001

Installation Information: Install in Left Front (LF).

3TN66, 3TN72 (3 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3500001	400	120	Plate	Immersion	3600003

Installation Information: Install in Right Rear (RR).

4TN82E & 4TNE98 (4 cyl.)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Immersion	3600001

Installation Information: Install in Left Center (LC).

YYDXL4.4 1 D4T

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100003	400	120	1" NPT	Freeze Plug	3600001

Installation Information: Install in Left Center (LC).

ZETOR

All Models – except 278 (4.5L) & **417** (6.8L)

Part No.	Watt	Volt	Diameter	Type	Repl. Cord
3100065	600	120	1-3/4"	Freeze Plug	3600006

Installation Information: Install in Left Rear (LR). Point element UP.

STANDARD COOLANT IMMERSION HEATERS

Zerostart®

THREADED IMMERSION HEATERS (COPPER)

- COOLANT USE ONLY
- Easy to Spec: Not model specific! Measure space and determine threading at installation location.
- Ensure quick winter starts – reduce engine wear
- Most efficient type of heater
- Direct OEM replacement in many applications
- Copper element for use in engine blocks
- Includes Power Cord

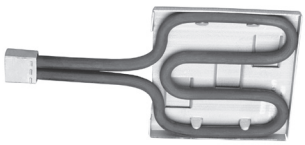
Part No.	Voltage	Wattage	Thread Size	Element Length	For Use In	Replacement Cordset
3500026	120	400	3/8" NPT	2-3/4" (6.9cm)	Coolant	-
3100093	120	400	3/4" NPT	1" (2.5cm)	Coolant	3600003
3100003	120	400	1" NPT	1" (2.5cm)	Coolant	3600001
8604967	120	600	3/4" NPT	1-3/8" (3.4cm)	Coolant	-
3500022	120	750	3/4" NPT	2-7/8" (7.1cm)	Coolant	3600008
8602549**	120	1000	3/4" NPT	4" (10.1cm)	Coolant	3600008
3500032	120	1000	3/4" NPT	3-3/8" (8.5cm)	Coolant	3600008
3500043	120	1000	3/4" NPT	3-7/8" (9.7cm)	Coolant	3600008
8600090	120	1000	1" NPT	4-1/4" (10.6cm)	Coolant	3600008
8602611**	120	1500	3/4" NPT	4-3/4" (12cm)	Coolant	3600008
8601011	120	1500	3/4" NPT	5-1/4"(13.3cm)	Coolant	3600008
8605556	120	1500	1" NPT	5" (12.7cm)	Coolant	3600008
3500013	120	1500	1" NPT	3-3/4" (9.5cm)	Coolant	3600008
8602514**	240	1000	3/4" NPT	4" (10.1cm)	Coolant	-
8600988	240	1000	3/4" NPT	4-1/2" (11.4cm)	Coolant	-
8600120	240	1000	1" NPT	4-1/4" (10.8cm)	Coolant	-
8602573**	240	1500	3/4" NPT	4-3/4" (12cm)	Coolant	-
8601054	240	1500	3/4" NPT	5-1/4" (13.3cm)	Coolant	-
8600260	240	1500	1" NPT	5" (12.7cm)	Coolant	-
3500031	240	1500	1" NPT	3-3/4" (9.5cm)	Coolant	-

**Element does not turn during installation.
Warning: Not for use in oil or hydraulic-fluids.

CLAMP-ON OIL PAN & TRANSMISSION HEATERS

RADIANT HEATERS

- For applications with no core plug or core plug access
- Heating element conducts heat directly
- Universal mounting clamp included



Part No. 3400014 & 3400011

Part No. 3400020

Part No.	Dimensions	Watts	Volt	Replacement Cordset
3400014	6" x 6" (15.2cm x 15.2cm)	500	120	3600002
3400011	4" x 4" (10.1cm x 10.1cm)	300	120	3600002
3400020	GM Ecotec 2.2L/2.4L	300	120	3600082

OIL IMMERSION HEATERS

Zerostart®

THREADED IMMERSION HEATERS (STAINLESS)

- For use in oil - engine oil pans, transmissions, hydraulic systems, etc.
- Easy to spec: Not model specific! Measure space and determine threading at installation location.
- 10 watts of power per quart of oil
- Keeps oil warm and free flowing for instant lubrication
- Stainless steel element – Low watt density heating for long life in oil and hydraulic fluid applications

Part No.	Voltage	Wattage	Thread Size	Element Length	Thermostat Included	Replacement Cordset
2201712	120	150	1/2" NPT	7-3/4" (19.5cm)	-	3600002
8609624	120	150	1/2" NPT	5" (12.7cm)	-	3600008
2204274*	120	150	1" NPT	6-5/8" (16.6cm)	-	3600015
2200635	120	150	1" NPT	5-5/8" (14.2cm)	-	3600015
8609802	120	150	1" NPT	6" (15.2cm)	8609845	3600008
3500006	120	150	1-1/16" – 12 STOR	5" (12.7cm)	-	3600008
3500085	120	150	1-5/16" – 12 STOR	5" (12.7cm)	-	3600008
3500047	120	150	M22 x 1.5	7" (17.8cm)	-	-
8602859	120	150	M22 x 1.5	3-1/2" (8.9cm)	8602794	3600008
3500071	120	150	M25 x 1.5	3-1/2" (8.9cm)	-	3600008
3500094	120	150	M27 x 2	3-1/2" (8.9cm)	-	3600008
8609683	120	300	1/2" NPT	5" (12.7cm)	-	3600008
2201968	120	300	3/4" NPT	11-1/8" (28.2cm)	-	3600015
8603243	120	300	3/4" NPT	5-1/2" (13.9cm)	-	3600008
8609861	120	300	1" NPT	6" (15.2cm)	8609853	3600008
2202662**	120	300	1" NPT	6" (15.2cm)	-	-
3500079	120	300	1-5/16" STOR	5" (12.7cm)	-	3600008
8602913	120	300	M22 x 1.5	5-1/2" (13.9cm)	8602905	3600008
3500093	120	300	M27 x 2	5-1/2" (13.9cm)	-	3600008
8609713	120	450	1/2" NPT	7-1/2" (19cm)	-	3600008
3500049	120	450	M27 x 2	7-1/4" (18.4cm)	-	3600008
8609098	120	1000	1" NPT	9-1/2" (24cm)	-	3600008
8609837	240	150	1" NPT	6" (15.2cm)	-	-
3500086	240	150	1-5/16" – 12 STOR	5" (12.7cm)	-	-
8609659	240	300	1/2" NPT	5" (12.7cm)	-	-
3500078	240	300	1-5/16" STOR	5" (12.7cm)	-	-

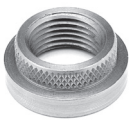
*Welding flange included. Designed for Caterpillar 3406 with BrakeSaver

Note: To prevent potential damage to heater and fluid, oil pan heaters should only be used to keep warm oil warm. Do not use with cold oil.

Installation: Not all oil pans are equipped with ports. Inspect oil pan carefully before ordering to determine available ports. When no pre-threaded port exists, contact the engine manufacturer for proper installation procedure.

****Part No. 2202662** Additional Information

- Cartridge style heater, element inside casting
- Thermostatically controlled On/158°F (70°C) Off/230°F (110°C)
- No replacement parts for thermostat



1/2" NPT ADAPTER BUSHING
Part No. 8602824

- 1" outside diameter
- Use on steel pans only
- 1/2" NPT oil pan heaters are supplied with weld or braze-in adapter

INDUSTRIAL IMMERSION HEATERS

ArcticFox®

Industrial electric immersion heater with steel heating element.

APPLICATIONS

- Industrial Tank
- Off Road

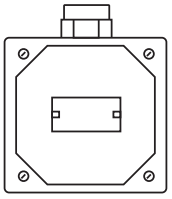
FEATURES

- Fuel, oil, & hydraulic fluid compatible
- Steel heating element
- Installs in threaded 2" NPT mounting port
- NEMA 4 moisture resistant enclosure 3/4" NPT opening for electric wire
- Adjustable thermostat 60-187°F (16 - 86°C) range
- UL802H Listed & CSA certified
- Horizontal installation recommended - Element must be completely immersed in fluid to avoid product failure.
- Weld on tank adapters available (Page 146)

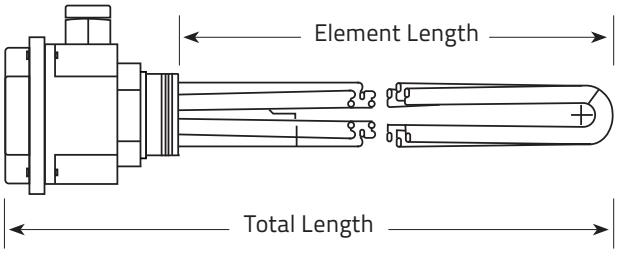
Part No.	Volts	Watts	Element Length	Total Length	Watts/sq in
A-7540	120	1000	12-1/2" (32cm)	17" (43cm)	11.3
A-7541	208	1000	12-1/2" (32cm)	17" (43cm)	11.3
A-7542	240	1000	12-1/2" (32cm)	17" (43cm)	11.3
A-7543	277	1000	12-1/2" (32cm)	17" (43cm)	11.3
A-7544	380	1000	12-1/2" (32cm)	17" (43cm)	11.3
A-7545	120	2000	18-1/2" (47cm)	23" (58cm)	14
A-7546	208	2000	18-1/2" (47cm)	23" (58cm)	14
A-7547	240	2000	18-1/2" (47cm)	23" (58cm)	14
A-7548	277	2000	18-1/2" (47cm)	23" (58cm)	14
A-7549	380	2000	18-1/2" (47cm)	23" (58cm)	14

WARNING: Tank reinforcement MUST be used to provide additional structural support to the fluid warmer to avoid tank cracking, leading to fluid leakage. See Page 146 for adapter kits.

PRODUCT DIMENSIONS



Overhead View



THERMOSTATS

Zerostart®

Maintain coolant temperature and save money by reducing the engine heater operating hours with a coolant thermostat. The thermostat is installed at the farthest point from the block heater to monitor the overall coolant temperature. Based on the temperature setting, the thermostat cycles the engine block heater on & off, reducing the operating hours of the engine block heater.

Features:

- Component of Thermostat Immersion Heater System
- Use in conjunction with engine block heater and Series Y-Cord to control heater usage
- Saves money by reducing engine heater operating hours
- New installations or replacement part

Part No. 3600068
1/2" NPT
On 40°F / Off 55°F

Part No. 3600058
1/2" NPT
On 55°F / Off 75°F

Part No. 3600057
1/2" NPT
On 100°F / Off 120°F

Part No. 3600066
3/4" NPT
On 40°F / Off 55°F

Part No. 3600073
M22 X 1.5
On 40°F / Off 55°F

Part No. 3600081
#8 STOR
On 40°F / Off 55°F

Part No. 3600096
M18 X 1.5
On 40°F / Off 55°F

Part No. 3600087
M27
On 40°F / Off 55°F

COOLANT DAM®

Part No. T-1000

2-in-1 Shop Tool – Coolant Dam pulls a vacuum on the cooling system through the radiator cap allowing repairs to be done in less time while not completely draining the coolant out and then, changes over to a pressure tester after the repair has been completed.

APPLICATIONS

- Changing heater hoses
- Changing fan sensors
- Changing Temperature sensors
- Installing shut-off valves for fuel warmers & separators
- Replacing cab heater cores
- Replacing heater control valves

FEATURES

- Creates a vacuum, holding coolant inside the engine without hand pumping or running the engine
- Quickly converts the unit from vacuum to a pressure tester
- No need to drain the block for simple repairs
- Coolant Filling

ACCESSORIES

T–1025
Standard Automotive Size. Reversible seal fits 1" or 3/4" deep filler necks. Also fits late model Mercedes 1319.

T–1020
Volvo. Fits vehicles using Volvo part number 1542591 radiator cap. (46x33mm Thread).

T–1024
Truck "B" Size

T–12027
To be used with T–1025 to test 32mm I.D. 16mm deep cooling system filler necks.

T–1029
GMC – Freightliner – Western Star Threaded, Non-Vented, Western Star cap part number 20009-0002.

T-1030
Transit Bus Adapter. Fits many Flexible, Crown, MCI, New Flyer, GM, MAN, SAAB filler necks.

T–1034
Pop Off Pressure Adapter. Mounts to top of Coolant Dam® to test pop off pressure of truck "B" size cap.

T–1040
Volvo. Fits vehicles using Volvo part number 6794968 radiator cap. (63 x 3mm Thread).

T–1223
Volvo VN Series. Fits vehicles using Volvo part number 1674922.

T–1228
Ford E-350. International 7.3L. Fits vehicles using Cap # RS-103, F6DZ-8100A, 12R-16#, or 31406.

T–1229
Kenworth Vehicles using cap KW-N5349002. Upgrade to KW-N5349002.

T–1230
Volvo VN Series. 2006 and newer Fits vehicles using Volvo part number 20519046.

T–1233
Freightliner - 2018 & Newer Columbia/Cascadia - 2008 & Newer vehicles using cap # N9685001 or BHTN9685001 or BHTW3678001.

T–3000
Navistar (1996 & Newer). Fits vehicles using Navistar part number 2039390C1 radiator cap.

T–3064
Freightliner, Columbia – 2004–2009 Fits vehicles using Freightliner part number 05-20763-000 radiator cap.

T–3030X
Caterpillar Adapter. Call for information – Cat. #s 7N918, 7N5565, 6N1981, 1N3599.

T–1721
Carrier Vector Series 3 threads at .45" depth Surge Tank Cap 58-01432-00SV

GAUGE PROTECTIVE COVER
Part No. RGB-200
Fits snugly over the Coolant Dam pressure/vacuum gauge to provide additional protection. Fits part # A-460 pressure/vacuum gauge.

Part No.

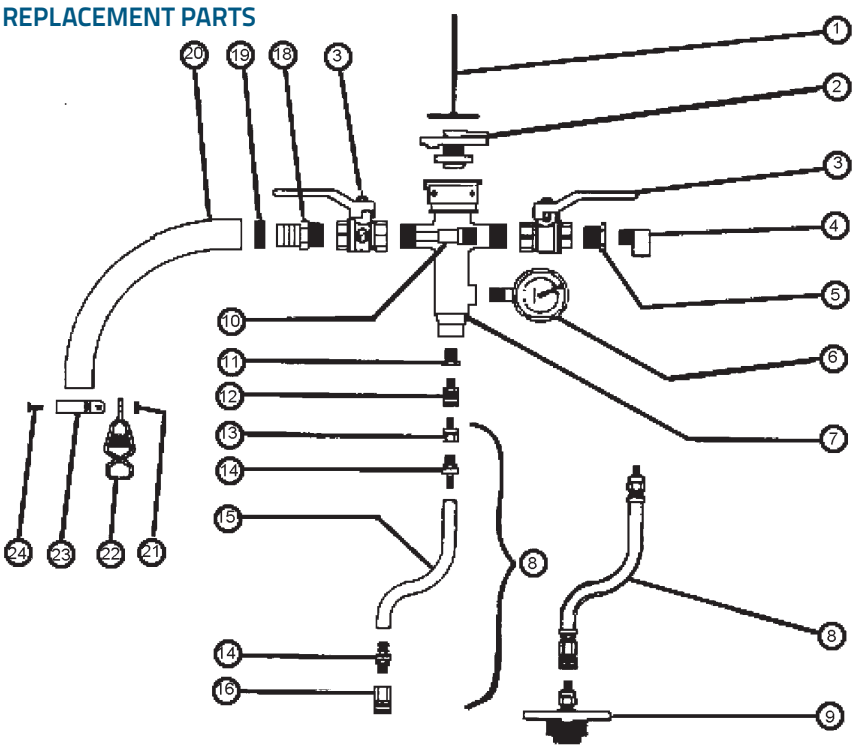
KT-T1000-CUMMINS-ISX-ATI
Servicing Cummins ISX After-Treatment Injector (ATI) Units

KIT INCLUDES:

- 3089567 Coolant Block Plug
- 4918690 Coolant Line Plugs
- A-6622 36" Extension Hose
- B-702 Work Instruction Sheet

COOLANT DAM®

REPLACEMENT PARTS



Item	Qty.	Description	Part #
1	1	Hanger Wire	A-483
2	1	Radiator Cap-Locking, 13 Pound	A-463
	1	Radiator Cap-Locking, 20 Pound	A-6336
3	1	1/2" Ball Valve (Blue Handle) 1/2" Ball Valve (Red Handle)	A-461-B A-461-R
4	1	1/4" 90 Degree Street Elbow	A-242
5	1	1/2" x 1/4 Steel Pipe Bushing	A-470
6	1	Pressure / Vacuum Gauge	A-460
7	1	COOLANT DAM Pressure Tester Housing	A-450
8A*	1	1/4" Extension Hose, 14" Long	A-462-2
8B*	1	1/4" Extension Hose, 36" Long	A-6622
8C*	1	1/4" Extension Hose, 72"	A-1955
9	1	Head Kit	T-1025
10	1	Nozzle	A-477
11	1	1/4" x 1/8" Steel Pipe Bushing	A-472
12	1	1/8" BST Male Coupler	A-482
13	2	1/8" BST Female Nipple	A-481
14	2	1/4" x 1/8" Push on Hose End	A-462-3
15	1	1/2" O.D. x 14" (356mm) Long Hose	A-462-4
16	1	1/8" BST Female Coupler	A-480
18	1	3/4" Hose barb to 1/2" Male Pipe	A-652
19	1	Uni-Clamp	A-476
20	1	3/4" I.D. x 7' (2m) Long Discharge Hose	A-536
21	1	#8-32 KEPS Shake proof Nut	A-486
22	1	Spring Clip	A-485
23	1	Hose Band	A-484
24	1	#8-32 x 1/2" (13mm) Long Machine Screw	A-487

*Includes items 13-16

RUBBER EXPANSION PLUGS

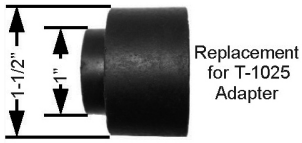
Temporarily plug coolant lines during component replacement

Part #	Description
A-440	3/8"
A-441	7/16"
A-442	1/2"
A-443	9/16"
A-444	5/8"
A-445	11/16"
A-446	3/4"
A-447	13/16"
A-448	7/8"
A-451	1"
A-452	1-1/8"
A-453	1-1/4"
A-449	Kit (1) ea 3/8" to 7/8"
A-467	Case
A-466	Foam Insert

ADAPTER SERVICE PARTS

A-480
Female Coupler

A-482
Male Coupler



A-498
Car Rubber Bushing

A-489
Truck Rubber Bushing

A-481
Female Nipple

A-512
Male Nipple

3 CORDSETS, RECEPTACLES & THERMOSTAT IMMERSION HEATER

Auto & Light Duty Cordsets

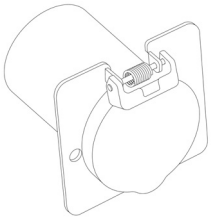
Select from a wide range of cordset options from the standard cordset, lit plug with an LED light or the convenient flip cap receptacle.

Heavy Duty Cordsets

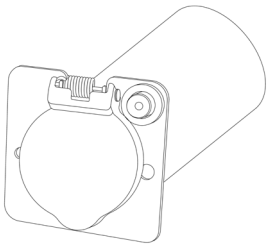
Choose from a wide range of cord options including single, parallel, series, and w wiring configurations. Options include standard and weatherproof (WP) male plugs. WP plugs fit directly into Zerostart heavy duty receptacles with a push-to-lock feature that secures it in place.

Receptacles & Indicator Lights

A weatherproof (WP) receptacle with optional LED indicator light(s) that shows voltage confirmation and heater operation at a glance. Choose from a receptacle, single indicator light or dual indicator lights to fit your application.



Receptacle



Single Indicator Light Receptacle

The Thermostat & Immersion Heater system is designed to reduce your electric costs by regulating the engine block heater operating hours.

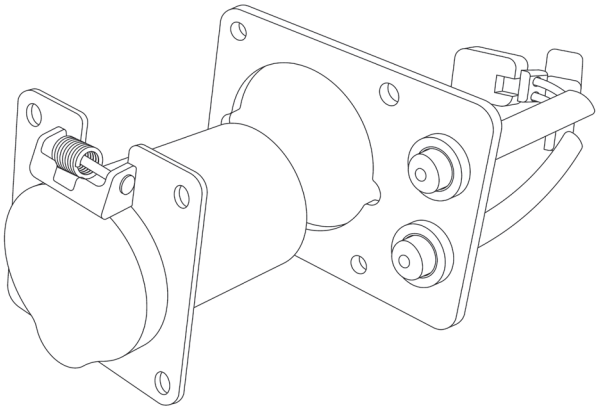
Heavy duty operators or fleet managers use block heaters to prevent costly 'no starts". The block heater is routinely plugged in when the ambient temperature is 32°F (0°C) or colder. The heater draws electrical current from the time it is plugged in, until the driver unplugs the block heater prior to start up.

The system has 4 main components:

- Thermostat
- Series Y-Cord
- Receptacle & Indicator Lights
- Engine Block Heater

The thermostat system regulates the coolant temperature by cycling the engine block heater on and off based on the temperature range setting. This system can be utilized when the truck is parked or over the road and eliminates the need for preset timers.

CORDSETS



RECEPTACLES

THERMOSTAT & IMMERSION HEATER SYSTEM

AUTOMOTIVE & LIGHT TRUCK CORDSETS

Zerostart®

SINGLE CORDSETS

Single Cord with male plug & female silicone connector

FEATURES

- Female silicone connector
- 18/3 HPN Wire
- Male Plug

APPLICATION(S)

- Freeze Plug Heaters
- Engine Block Heaters
- Oil Pan Heaters
- Transmission Heaters

CROSS REFERENCE - STANDARD, LIT PLUG & FLIP CAP CORDS

Silicone Connector	Standard Cord Part No.	Length	Specifications	Lit Plug Part No.	Length	Flip Cap Part No.	Power Cord Length
A	3600001	5' (1.52 m)	Pin Diameter: 0.105"	3600118	5' (1.52 m)	3600126	16' (5 m)
	3600023	13" (33 cm)		3600118	5' (1.52 m)	3600126	16' (5 m)
AA	3600002	5' (1.52 m)	Pin Diameter: 0.09"				
B	3600010	7.5' (2.29 m)					
	3600019	3' (0.9 m)					
C	3600003	5' (1.52 m)					
D	3600005	5' (1.52 m)		3600117	5' (1.52 m)	3600127	16' (5 m)
E	3600036	1' (30.3 cm)					
	3600006	5.8' (1.8 m)		3600116	5' (1.52 m)	3600124	16' (5 m)
	3600021	7.8' (2.4 m)					
F	3600007	5' (1.52 m)					
G	3600016	5.8' (1.8 m)					
H	3600004	5' (1.52 m)				3600129	16' (5 m)
	3600022	13" (33 cm)				3600129	16' (5 m)
I	3600080	5' (1.52 m)				3600128	16' (5 m)
J	3600083	5' (1.52 m)	GM - Threaded Cordnut	3600119	5' (1.52 m)		
	3600100		GM - Cord Clip	3600119	5' (1.52 m)		
	3600082		GM - Includes t-stat,use with 2006 & newer models to avoid check engine light				
	3600120			3600119	5' (1.52 m)		

AUTOMOTIVE & LIGHT TRUCK CORDSET ACCESSORIES

Zerostart®

PLUG PROTECTOR

Part No. 3600012

Fits 120V plugs. Prevents freeze ups. Keeps plug contacts clean for optimum power & safety.

SAFETY REMINDER

AFTER HEATER USE

Disconnect the extension cord from the heater cord by firmly grasping each plug and pulling in opposite directions.

ONLY GRASP THE PLUGS

Do not grasp, pull, yank or snap the cords to disconnect power. Damage will result to the power cord connections which could result in permanent malfunction and even an electrical short.

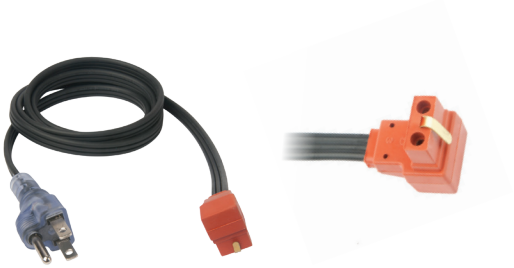
AUTOMOTIVE & LIGHT TRUCK CORDSETS

Zerostart®

LIT PLUGS

A cordset that shows a visible LED light when power is being supplied to the engine block heater.

- Light is visible from 50' (15 m) to monitor from a distance
- 5' (1.5 m) cord with LED NEMA 5-15 plug
- Automotive & light duty applications
- Lit Plug & Heater Kits Available
  See Auto & Light Duty Application Guide



Part No. 3600118

Silicone Connector: A

Plug: NEMA 5-15

Length: 5' ft (1.5 m)

Std Cord: 3600001

Part No. 3600117

Silicone Connector: D

Plug: NEMA 5-15

Length: 5' ft (1.5 m)

Std Cord: 3600005

Part No. 3600116

Silicone Connector: E

Plug: NEMA 5-15

Length: 5' ft (1.5 m)

Std Cord: 3600006

Part No. 3600119

Silicone Connector: J

Plug: NEMA 5-15

Length: 5' ft (1.5 m)

Std Cord: 3600082, 3600083

Note: Do NOT use with GM 2006 and newer models to avoid check engine light.

SILICONE CONNECTOR CHART - See Page 98

AUTOMOTIVE & LIGHT TRUCK CORDSETS

Zerostart®

FLIP CAP RECEPTACLE

A bumper mount receptacle that provides a complete connection between the engine block heater and standard 120 volt outlet.

- Provides a convenient access to plug-in the engine block heater
- Eliminate dangling power cords
- Low profile flip cap receptacle
- Automotive & light duty applications

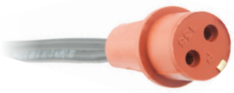
Kit Includes:

Receptacle, cordset with silicone connector, 16' (5 m) power cord, & installation instructions.

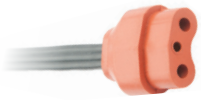
Part No. 3600126
Silicone Connector: A
Plug: NEMA 5-15
Length: 16' ft (5 m)
Std Cord: 3600001

Part No. 3600128
Silicone Connector: I
Plug: NEMA 5-15
Length: 16' ft (5 m)
Std Cord: 3600080

Part No. 3600124
Silicone Connector: E
Plug: NEMA 5-15
Length: 16' ft (5 m)
Std Cord: 3600006



Part No. 3600125
Silicone Connector: J
Plug: NEMA 5-15
Length: 16' ft (5 m)
Std Cord: 3600082
Note: Do NOT use with GM 2006 and newer models to avoid check engine light.



Part No. 3600127
Silicone Connector: D
Plug: NEMA 5-15
Length: 16' ft (5 m)
Std Cord: 3600005

Part No. 3600129
Silicone Connector: H
Plug: NEMA 5-15
Length: 16' ft (5 m)
Std Cord: 3600004

Part No. 3700002
1.5' ft (1/2 m) Extension Cord

Part No. 3600146
16' ft (5 m) Extension Cord

SILICONE CONNECTOR CHART - See Page 98

HEAVY DUTY CORDSETS

Zerostart®

HEAVY DUTY CORD SILICONE CONNECTORS

Silicone Connector	Pin Distance	Pin Diameter
K	0.360″	0.138″
L	0.375″	0.138″
M	0.360″	0.138″

Type B
Right Angle

Type K
Right Angle

Type L
Right Angle

Type M
Straight

SINGLE CORDSETS

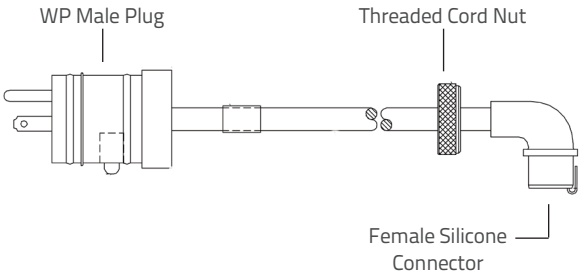
Single heavy duty cord with male plug & silicone female connector

Part No.	Volts	Amp	Length	Wire	Plug Type	Silicone Connector	Notes
3600085	125	15	6' (1.8m)	14/3 SJOW	A - NEMA 5-15	K	
3600024	125	15	12" (30.5cm)	16/3 HPN	A - NEMA 5-15	K	
3600015	125	15	5' (1.5m)	16/3 HPN	A - NEMA 5-15	L	
3600048	125	15	6' (1.8m)	16/3 HPN	A - NEMA 5-15	K	High temp heat shield
3600008	125	15	6' (1.8m)	16/3 HPN	A - NEMA 5-15	K	Industrial silicone cord
3600122	125	15	6' (1.8m)	16/3 HPN	A - NEMA 5-15	K	Silicone cord
3600086	240	15	6' (1.8m)	14/3 SJOW	B - NEMA 6-15	K	High temp heat tape
8608377	240	15	6' (1.8m)	16/3 HPN	B - NEMA 6-15	K	

WP SINGLE CORDSETS

Single heavy duty cord with weatherproof male plug & silicone female connector

Part No.	Volts	Amp	Length	Wire	Plug Type	Silicone Connector
8608849	125	15	5-1/2' (1.7m)	14/3 SJOW	A (WP) - NEMA 5-15	K
3600046	125	15	6' (1.8m)	18/3 HPN	A (WP) - NEMA 5-15	B
8608652	125	15	7' (2.1m)	14/3 SJ	A (WP) - NEMA 5-15	K
8608814	125	15	10' (3m)	14/3 SJOW	A (WP) - NEMA 5-15	K
8608857	125	15	12' (3.7m)	14/3 SJ	A (WP) - NEMA 5-15	K
8608865	125	15	14' (4.3m)	14/3 SJ	A (WP) - NEMA 5-15	K
8605122	240	15	7' (2.1m)	14/3 SJOW	B (WP) - NEMA 6-15	K



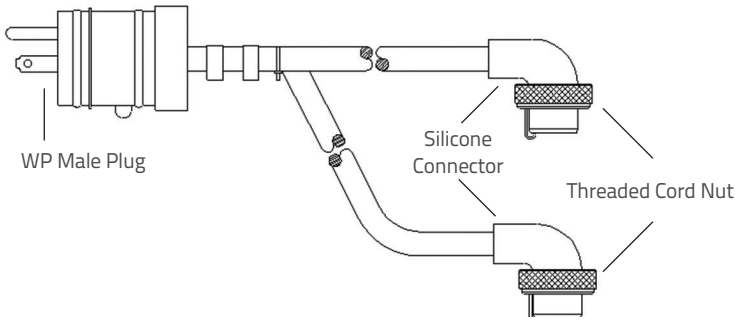
HEAVY DUTY CORDSETS

WP PARALLEL CORDSETS

Two cords wired parallel, recieving the same voltage. Includes WP male plug and two female silicone connectors.

- Use with multiple heaters

Part No.	Volts	Amp	Length1	Length2	Wire	Plug Type	Silicone Connector
8608768	125	15	12" (30.5cm) w/ Female Plug	7' (2m)	14/3 SJOW	A (WP) - NEMA 5-15	K
8608792	125	15	12" (30.5cm) w/ Female Plug	10' (3m)	14/3 SJOW	A (WP) - NEMA 5-15	K
8607990	125	15	7' (2m)	7' (2m)	14/3 SJOW	A (WP) - NEMA 5-15	K
8607311	125	15	7' (2m)	9' (2.7m)	14/3 SJOW	A (WP) - NEMA 5-15	K
8608059	125	15	7' (2m)	10' (3m)	14/3 SJOW	A (WP) - NEMA 5-15	K
8608423	125	15	14' (4.3m)	14' (4.3m)	14/3 SJOW	A (WP) - NEMA 5-15	K

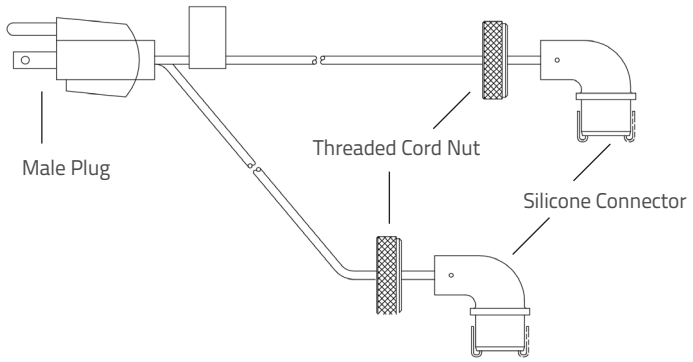


SERIES Y-CORDSETS

Two cords wired in series allowing the thermostat to cycle the engine block heater on and off. Includes male plug and two female silicone connectors.

- Use in conjunction with engine block heater and thermostat to control heater usage
- NO indicator light connections

Part No.	Volts	Amp	Length1	Length2	Wire	Plug Type	Silicone Connector	Notes
3600065	125	15	6' (1.8m)	6' (1.8m)	16/3 HPN	A - NEMA 5-15	K	
8604002	125	15	6' (1.8m)	6' (1.8m)	16/3 HPN	A - NEMA 5-15	K	Includes T-Stat 3600057 1/2" NPT / 100°F to 120°F
3600064	125	15	6' (1.8m)	6' (1.8m)	16/3 HPN	A (WP) - NEMA 5-15	K	
3600089	125	15	8.5' (2.6m)	14' (4.3m)	14/3 SJOW	A (WP) - NEMA 5-15	K	
8604037	240	15	6' (1.8m)	6' (1.8m)	16/3 HPN	B - NEMA 6-15	K	Includes T-Stat 3600057 1/2" NPT / 100°F to 120°F



HEAVY DUTY CORDSETS

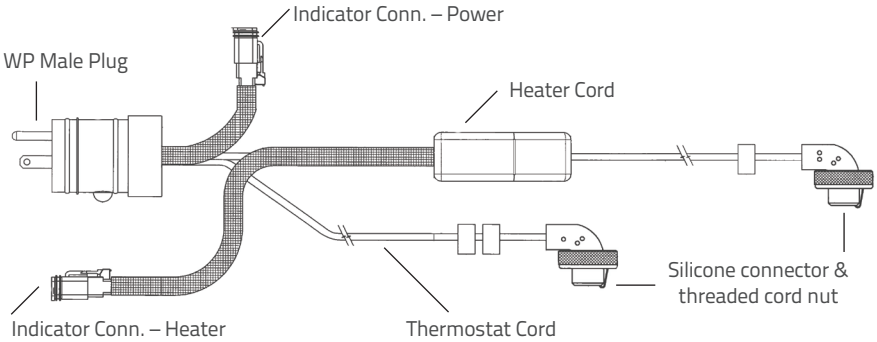
SERIES Y-CORD DUAL INDICATOR LIGHT CONNECTIONS

Two Cords wired in series allowing the thermostat to cycle the engine block heater on & off.

FEATURES

- Component of Thermostat Immersion Heater System
- Use in conjunction with engine block heater and thermostat to control heater usage
- Color coded dual indicator light connections

Part No.	Volts	Amp	T-Stat Length	Heater Length	Wire	Plug Type	Silicone Connector
3600072	125	15	2' (60cm)	8' (2.4m)	16/3 HPN	A (WP) - NEMA 5-15	K
3600090	125	15	4.6' (1.4)	9' (2.7m)	16/3 HPN	A (WP) - NEMA 5-15	M
3600079	125	15	6' (1.8m)	6' (1.8m)	16/3 HPN	A (WP) - NEMA 5-15	K
3600102	125	15	8' (2.4m)	7' (2.1m)	16/3 HPN	A (WP) - NEMA 5-15	K
3600091	125	15	14' (4.3m)	8.3' (2.5m)	16/3 HPN	A (WP) - NEMA 5-15	K
3600097	125	15	14' (4.3m)	14' (4.3m)	16/3 HPN	A (WP) - NEMA 5-15	K



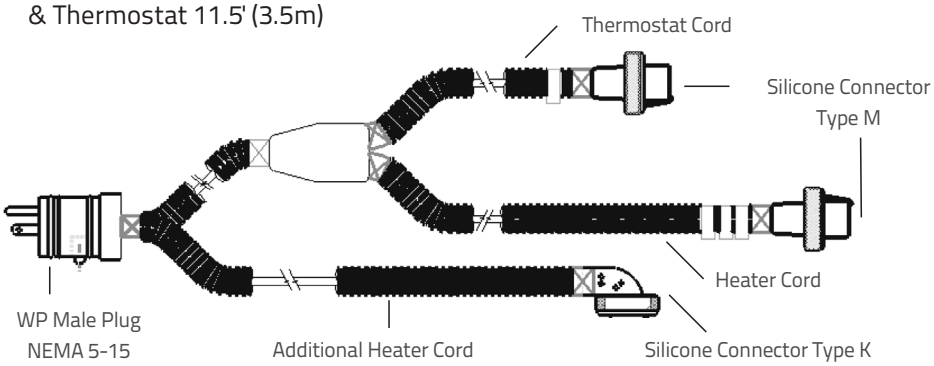
W-CORD

Part No. 3600094

Three cords, two wired in series for a thermostat & engine block heater. Thermostat will cycle the block heater saving energy. The third cord is wired parallel for a second independant heater.

FEATURES

- 125 Volt, 15 Amps
- 16/3 HPN Wire
- Plug Type: A (WP) - NEMA 5-15
- Cord Lengths: Heaters 10' (3m) each & Thermostat 11.5' (3.5m)
- Use in conjunction with (2) heaters and (1) thermostat.
- Thermostat controls one heater and the remaining heater is always on when voltage applied.



HEAVY DUTY CORDSETS ACCESSORIES

WP MALE PLUG

Part No. 8605254

120V 15A Plug.
Use with any
WP housing

WP RUBBER BOOT

Part No. 8605645

Fits 120V 15A WP Plug.
Use with WP plug
and housing.
Not CSA Approved.

PLUG PROTECTOR

Part No. 3600012

Fits 120V plugs. Prevents freeze ups. Keeps plug contacts clean for optimum power and safety,

3-WAY CONNECTOR

Part No. 3600040

Use multiple cold weather product with one common cord.

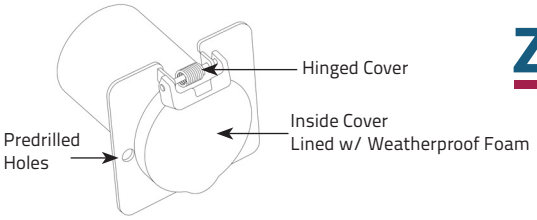
(3) 120V female receptacles.
14/3 Gauge Wire, 24" (61cm) long.
Type A male plug. Not CSA Approved.

3-WAY CONNECTOR & KIT

Part No. 3600041

Receptacle & 3-Way Connector **(not CSA)**

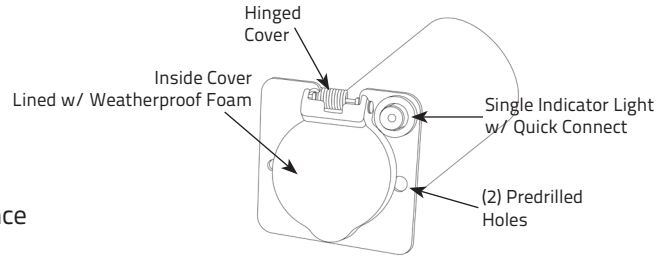
120V, 5' (1.5m), 14 Gauge.
4-Hole Square. Chrome Plated.



RECEPTACLES

WP Receptacle with hinged cover

	Part No.	Description	Finish	Specifications	
	8605149	WP Receptacle	Chrome	Square – 2.5" (6.2 cm) 2 Predrilled Holes	
	8608032	WP Receptacle & Gasket	Chrome	Square – 2.5" (6.2 cm) 2 Predrilled Holes	
	8606080	WP Receptacle	Chrome	Square – 2.5" (6.2 cm) 4 Predrilled Holes	
	3600088	WP Receptacle	Black Steel	Square – 2.5" (6.2 cm) 4 Predrilled Holes	
	3600056	WP Receptacle & Gasket	Zinc	Round – 2.8" (7.1 cm) 3 Predrilled Holes	
	8606048	Receptacle Mounting Bracket	Chrome	3" (7.6 cm) W x 3.5" (8.9 cm) H 6 Predrilled Holes	
	8606056	Receptacle Mounting Bracket	Chrome	3" (7.6 cm) W x 3.5" (8.9 cm) H 3 Predrilled Holes	



RECEPTACLE – SINGLE INDICATOR LIGHT

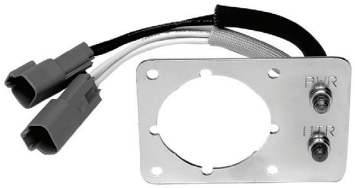
WP Receptacle with hinged cover and LED indicator light for voltage confirmation or heater operation at a single glance

Part No.	Description	Specifications
3600101	Single Indicator Light Receptacle	Finish: Chrome, Dimensions: 2.5" (6.4cm) Square
3600098	Cordset	10' (3m) Cord Length, Wire 16/3 HPN, WP Male Plug Type A(WP), Female Silicone Connector Type M
3600067	LED Light, Replacement	

RECEPTACLE – SINGLE INDICATOR LIGHT KIT

Part No.	Description	Specifications
3600099	Kit – Single Indicator Light Receptacle & Cordset	Finish: Chrome, Dimensions: 2.5" (6.4cm) Square – 10' (3m) Cord Length, Wire 16/3 HPN, WP Male Plug Type A(WP), Female Silicone Connector Type M

DUAL INDICATOR LIGHT PLATE



Light plate has (2) LED indicator lights for voltage confirmation and at a single glance heater operation.

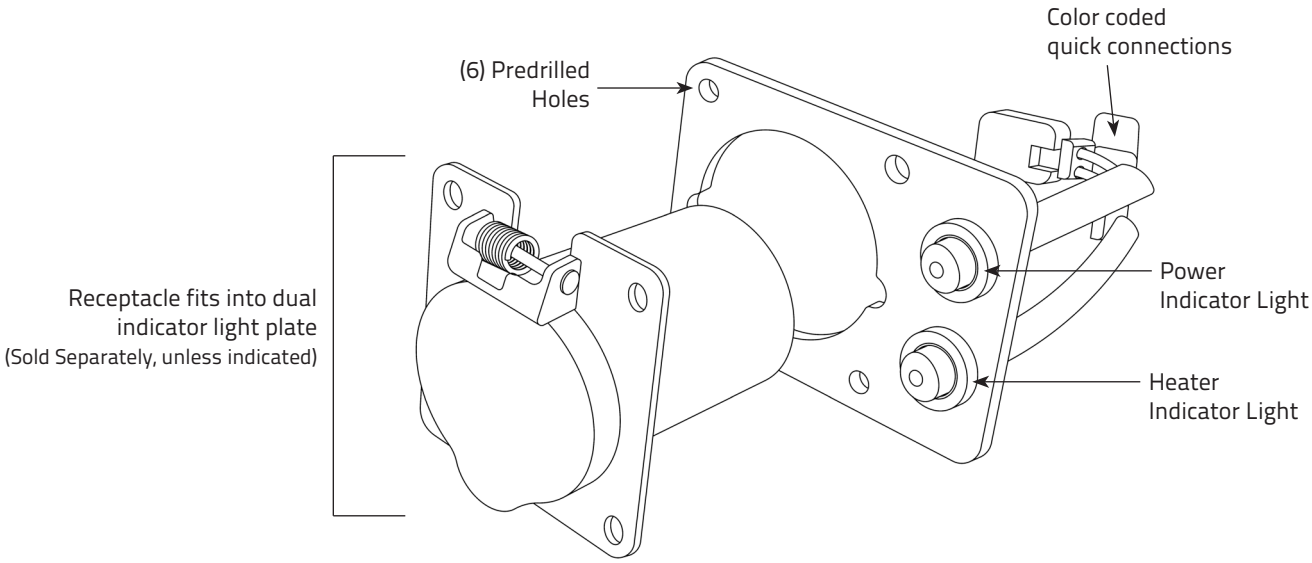
- Use with heavy duty receptacle

Part No.	Description	Specifications
3600060	Chrome Light Plate	3.5"(8.9cm) W x 2.5"(6.4cm) H
3600134	Thunder Gray Light Plate	3.5"(8.9cm) W x 2.5"(6.4cm) H
3600077	Black Light Plate	3.5"(8.9cm) W x 2.5"(6.4cm) H
3600067	LED Light, Replacement	

DUAL INDICATOR LIGHT KIT - SINGLE CORD

Single cord with dual indicator light connections, WP male plug type A(WP) & female silicone connector type K. The indicator light for the heater turns off when the system is not plugged into electirical current or if the engine block heater is not operational.

Part No.	Description	Specifications
3600049	Kit – Receptacle, Dual Indicator Light Plate & Cordset	Chrome Receptacle, Chrome Dual Indicator Light Plate, 6' (1.8m) Cord Length, 16/3 HPN Wire, WP Male Plug Type A(WP), Female Silicone Connector Type K.
3600062	6' (1.8m) Replacement Cordset for 3600049	
3600078	12' (3.7m) Replacement Cord for 3600049	



RECEPTACLE & WP PLUG KITS

	Part No.	Description	Cord Specs	Housing Specs	Finish
	8605505	Receptacle - Round (Weatherproof Field-Wired)	120V	3-Hole	Zinc Plated
	8605688	Receptacle - Square (Weatherproof Field-Wired)	120V	4-Hole	Chrome Plated
	8605513	Receptacle - Round (Weatherproof Field-Wired)	240V	3-Hole	Zinc Plated

Not CSA approved.

RECEPTACLE, WP PLUG & CORDSET KITS

	Part No.	Description	Volts	Length	Gauge	Housing Spec.	Finish
	3600028	Weatherproof Cordset & receptacle	120	8' (2.4m)	16	2-hole square	chrome plated
	3600014	Weatherproof Cordset & receptacle	120	12' (3.6m)	16	2-hole square	chrome plated
	8602891	Weatherproof cordset & receptacle	120	6' (1.8m)	16	3-hole round	zinc plated
	8602948	Weatherproof cordset & receptacle	120	10' (3.1m)	16	3-hole round	zinc plated
	8602921	Weatherproof cordset & receptacle	240*	6' (1.8m)	16	3-hole round	zinc plated
	8606005	Weatherproof Silicone Cordset & receptacle	120	6' (1.8m)	16	4-hole square	chrome plated
	8606013	Weatherproof Silicone Cordset & receptacle	120	10' (3.1m)	16	4-hole square	chrome plated

THERMOSTAT & IMMERSION HEATER SYSTEM

Calculator Maintenance

Zerostart®

Designed to reduce electric costs by regulating the engine block heater operating hours.

Select each of the following components to customize your heavy duty solution:

- Engine Block Heater
- Thermostat
- Series Y-Cord
- Dual Indicator Light Plate

Kits Available:
Includes: Y-Cord, Receptacle, and Dual Indicator Light Plate

- Mack - Anthem & VN Series
- Navistar A26

APPLICATION GUIDE

Make	Engine	Kit	Thermostat	Y-Cord for Dual Indicator Lights	Receptacle Chrome / Thunder Gray	Dual Indicator Light Chrome / Thunder Gray	Engine Block Heater
Caterpillar	3406E		3600066	See Series Y-Cord Chart for specific cord lengths	8606080 / 3600133	3600060 / 3600134	See Heavy Duty Application Guide
Caterpillar	C9		3600081				
Caterpillar	C11		3600081				
Caterpillar	C13		3600081				
Caterpillar	C15		3600081				
Caterpillar	C16		3600081				
Cummins	ISB		3600066				
Cummins	ISC		3600066				
Cummins	ISM		3600068				
Cummins	ISX		3600087				
Detroit Diesel	Series 60		3600066				
Detroit Diesel	DD13		3600087				
Detroit Diesel	DD15		3600087				
Detroit Diesel	DD16		3600087				
International	DT-466 (Non-EGR 1998-2005)		3600068				
International	DT5		3600087				
International	DT7		3600087				
International	DT11		3600087				
International	DT13		3600087				
Mack	Anthem	3600143	3600096				
Mack	MP8		3600096				
Mack	E-Tech		3600068				
Navistar	A26	3600142	3600096				
Paccar	PX-6		3600066				
Paccar	PX-7		3600066				
Paccar	PX-8		3600066				
Paccar	PX-9		3600066				
Volvo	D-13		3600096				
Volvo	VN Series	3600143	3600096				

THERMOSTAT BY-PASS TOOL

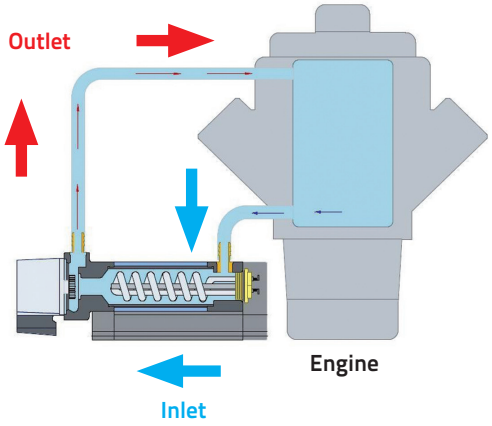
Part No. 3600115

- Use with thermostat immersion heater system to confirm system is operational
- Connects to the thermostat cord end of a Series Y-Cord
- Step-by-step instructions on our website at www.phillipsandtemro.com

4 COOLANT CIRCULATION HEATERS

Circulate warm coolant through the engine during cold weather to ensure:

- Dependable engine starts
- Fast starts for critical applications
- Quick acceptance of loads
- Reduce fuel consumption
- Lower engine emissions during start up
- Extend the life of the engine by reducing engine wear



What are the different types of heating?

Forced Flow Heating

An active heating system that circulates coolant with an electric pump.

- Push the coolant through the system
- Provide uniform heat distribution throughout the system
- Eliminate cold & hot spots

Thermosiphon Heating

A passive heating system based on thermal convection that circulates the coolant.

- Installed at or below the engine cylinder block coolant level
- Natural convection circulates the coolant within the system
- Available in a broad range of voltage and wattage options

What is the best heater for your application?

Select the appropriate circulation heater based on the total wattage needed for your application.

Wattage is based on:

1. Engine size (L)
2. Minimum ambient temperature the engine will be operating
3. How quickly does the coolant need to be at operating temperature

CIRCULATION HEATER WATTAGE FOR STATIONARY APPLICATIONS

Size of Engine (L)	Heat Rise* °F	Heat Rise* °C	Warm Up Time	Recommended Wattage**
4 Liter	85°F	47°C	2 Hours	1500
			4 Hours	750
			8 Hours	500
	105°F	58°C	2 Hours	2250
			4 Hours	1000
			8 Hours	500
6 Liter	85°F	47°C	2 Hours	2250
			4 Hours	1000
			8 Hours	500
	105°F	58°C	2 Hours	2250
			4 Hours	1500
			8 Hours	750
9 Liter	85°F	47°C	2 Hours	2700
			4 Hours	1500
			8 Hours	750
	105°F	58°C	2 Hours	4000
			4 Hours	2250
			8 Hours	1000
13 Liter	85°F	47°C	2 Hours	5000
			4 Hours	2250
			8 Hours	1500
	105°F	58°C	2 Hours	6000
			4 Hours	2700
			8 Hours	1500
15 Liter	85°F	47°C	2 Hours	6000
			4 Hours	4000
			8 Hours	1500
	105°F	58°C	2 Hours	2250
			4 Hours	4000
			8 Hours	2250
18 Liter	85°F	47°C	2 Hours	6000
			4 Hours	4000
			8 Hours	1500
	105°F	58°C	2 Hours	9000
			4 Hours	4000
			8 Hours	2250
27 Liter	85°F	47°C	2 Hours	12000
			4 Hours	6000
			8 Hours	2700
	105°F	58°C	2 Hours	12000
			4 Hours	6000
			8 Hours	4000
32 Liter	85°F	47°C	2 Hours	12000
			4 Hours	6000
			8 Hours	2700
	105°F	58°C	4 Hours	9000
			8 Hours	4000
35 Liter	85°F	47°C	4 Hours	9000
			8 Hours	4000
	105°F	58°C	4 Hours	12000
			8 Hours	6000
50 Liter	85°F	47°C	4 Hours	12000
			8 Hours	6000
	105°F	58°C	8 Hours	9000
60 Liter	85°F	47°C	8 Hours	9000
	105°F	58°C	8 Hours	9000
69 Liter	85°F	47°C	8 Hours	9000
	105°F	58°C	8 Hours	12000

*Heat rise calculations are based on wattage required to achieve the listed heat rise.

**If the engine is exposed to a wind load select the highest wattage available for that engine size.

Additional questions, contact a sales manager to help you determine what circulation heater is right for your application – sales@phillipsandtemro.com.

CIRCULATION HEATERS

FORCED FLOW

NEW PRODUCT

Circulate warm coolant through the engine during cold weather to provide even heat distribution.

APPLICATION(S)

- Diesel Genset
- Natural Gaseous Genset

TYPE OF HEATING

- Forced Flow

FEATURES

- Nonmagnetic impeller
- Die Cast Aluminum Housing
- Corrosion Resistant Universal Steel Bracket
- Thermostatically Controlled & Protected – (3) Temperature Setting
- Safety Shut-Off Provides Overheat Protection
- 6' (1.8 m) or 12' (3.7 m) Cord Options
- Assembled Service Kits Available
  Element Service Kit
  Pump Service Kit

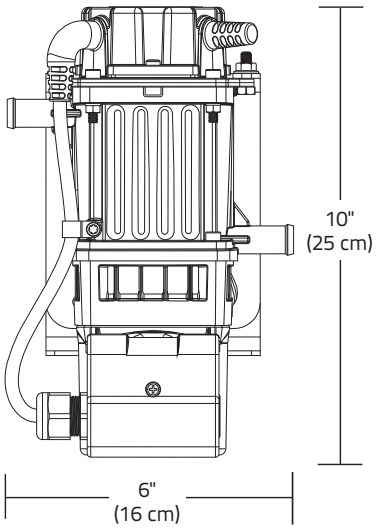
Part No.	Outlet Location	Watts	Volts	Amps	Heater Hose Connection	Temp	Cord	Plug Type	Element Service Kit	Pump Service Kit
3309236	Right	1500	120	12.5	5/8" (16 mm)	80°F (27°C)	6' ft (1.8 m)	NEMA 5-20P	3309456	3309010
3309237	Left	1500	120	12.5	5/8" (16 mm)	80°F (27°C)	6' ft (1.8 m)	NEMA 5-20P	3309457	3309010
3309238	Right	1500	120	12.5	5/8" (16 mm)	80°F (27°C)	12' ft (3.7 m)	NEMA 5-20P	3309458	3309010
3309239	Left	1500	120	12.5	5/8" (16 mm)	80°F (27°C)	12' ft (3.7 m)	NEMA 5-20P	3309459	3309010
3309228	Right	1500	120	12.5	5/8" (16 mm)	100°F (38°C)	6' ft (1.8 m)	NEMA 5-20P	3309452	3309010
3309229	Left	1500	120	12.5	5/8" (16 mm)	100°F (38°C)	6' ft (1.8 m)	NEMA 5-20P	3309453	3309010
3309230	Right	1500	120	12.5	5/8" (16 mm)	100°F (38°C)	12' ft (3.7 m)	NEMA 5-20P	3309454	3309010
3309231	Left	1500	120	12.5	5/8" (16 mm)	100°F (38°C)	12' ft (3.7 m)	NEMA 5-20P	3309455	3309010
3309220	Right	1500	120	12.5	5/8" (16 mm)	125°F (52°C)	6' ft (1.8 m)	NEMA 5-20P	3309026	3309010
3309221	Left	1500	120	12.5	5/8" (16 mm)	125°F (52°C)	6' ft (1.8 m)	NEMA 5-20P	3309027	3309010
3309222	Right	1500	120	12.5	5/8" (16 mm)	125°F (52°C)	12' ft (3.7 m)	NEMA 5-20P	3309450	3309010
3309223	Left	1500	120	12.5	5/8" (16 mm)	125°F (52°C)	12' ft (3.7 m)	NEMA 5-20P	3309451	3309010

Part No.	Outlet Location	Watts	Volts	Amps	Heater Hose Connection	Temp	Cord	Plug Type	Element Service Kit	Pump Service Kit
3309316	Right	2700	240	11.25	5/8" (16 mm)	80°F (27°C)	6' ft (1.8 m)	NEMA 6-15P	3309478	3309014
3309317	Left	2700	240	11.25	5/8" (16 mm)	80°F (27°C)	6' ft (1.8 m)	NEMA 6-15P	3309479	3309014
3309318	Right	2700	240	11.25	5/8" (16 mm)	80°F (27°C)	12' ft (3.7 m)	NEMA 6-15P	3309480	3309014
3309319	Left	2700	240	11.25	5/8" (16 mm)	80°F (27°C)	12' ft (3.7 m)	NEMA 6-15P	3309481	3309014
3309308	Right	2700	240	11.25	5/8" (16 mm)	100°F (38°C)	6' ft (1.8 m)	NEMA 6-15P	3309474	3309014
3309309	Left	2700	240	11.25	5/8" (16 mm)	100°F (38°C)	6' ft (1.8 m)	NEMA 6-15P	3309475	3309014
3309310	Right	2700	240	11.25	5/8" (16 mm)	100°F (38°C)	12' ft (3.7 m)	NEMA 6-15P	3309476	3309014
3309311	Left	2700	240	11.25	5/8" (16 mm)	100°F (38°C)	12' ft (3.7 m)	NEMA 6-15P	3309477	3309014
3309300	Right	2700	240	11.25	5/8" (16 mm)	115°F (46°C)	6' ft (1.8 m)	NEMA 6-15P	3309028	3309014
3309301	Left	2700	240	11.25	5/8" (16 mm)	115°F (46°C)	6' ft (1.8 m)	NEMA 6-15P	3309029	3309014
3309302	Right	2700	240	11.25	5/8" (16 mm)	115°F (46°C)	12' ft (3.7 m)	NEMA 6-15P	3309472	3309014
3309303	Left	2700	240	11.25	5/8" (16 mm)	115°F (46°C)	12' ft (3.7 m)	NEMA 6-15P	3309473	3309014

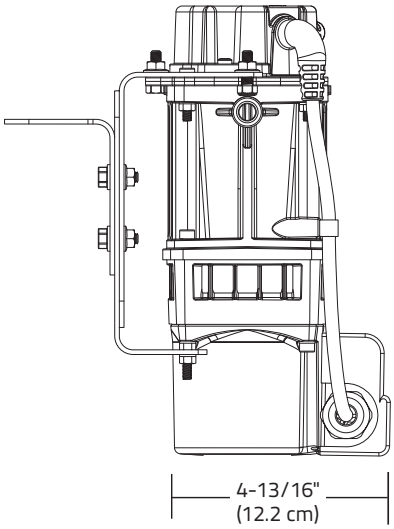
Note: Only 2700 Watt models include a vibration kit

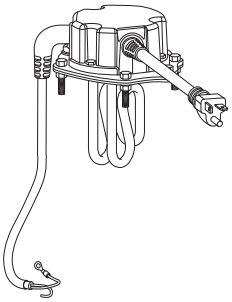
PRODUCT DIMENSIONS

Front View

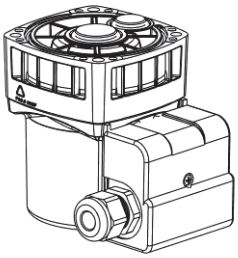


Left Side View





Element Service Kit



Pump Service Kit

CIRCULATION HEATERS

FLOWSTART

Models Available Upon Request

Circulates warm coolant throughout the engine to provide even heat distribution.

APPLICATION(S)

- Diesel genset
- Natural gas genset

TYPE OF HEATING

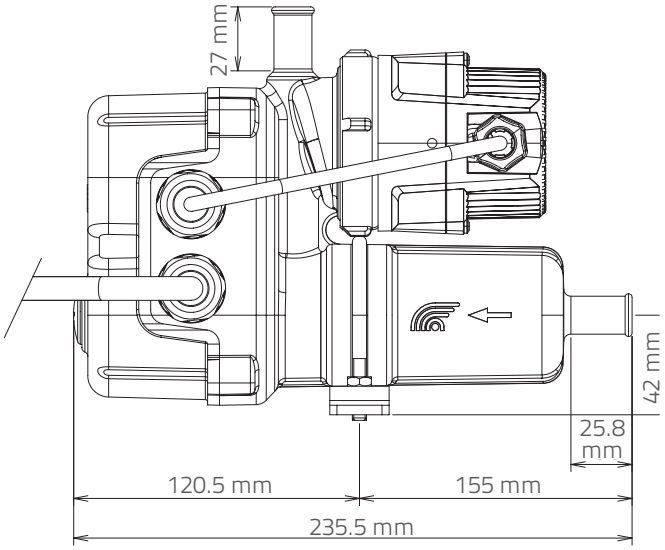
- Forced Flow

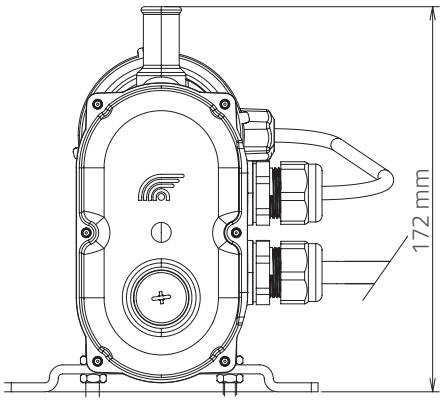
FEATURES

- Integrated, high efficiency pump
- Cast aluminum housing
- PA66 electrical cover
- Available power
  0.5 to 2kw
  120, 230, & 240V
- Regulating thermostat
  89-104°F (32-40°C)
  95-122°F (35-50°C)
- Safety thermostat 230°F (110°C), manual reset rated at 25A
- 6.9' (2.1m) power cable
- Mounting kit included

Part No.	Volts	Phase	Watts	Regulating Thermostat	Safety Thermostat	Plug Type	Certifications
3305106	120	1	1000	95°-122°F (35°-50°C)	230°F (110°C)	Nema 5-15	UL
3305114	120	1	1500	95°-122°F (35°-50°C)	230°F (110°C)	NEMA 5-20	UL
3305122	120	1	2000	95°-122°F (35°-50°C)	230°F (110°C)	NEMA L5-30	UL
3305130	208	1	1000	95°-122°F (35°-50°C)	230°F (110°C)	NEMA 6-15	UL
3305134	208	1	1500	95°-122°F (35°-50°C)	230°F (110°C)	NEMA 6-15	UL
3305138	208	1	2000	95°-122°F (35°-50°C)	230°F (110°C)	NEMA 6-15	UL
3305146	240	1	1090	95°-122°F (35°-50°C)	230°F (110°C)	NEMA 6-15	UL
3305150	240	1	1635	95°-122°F (35°-50°C)	230°F (110°C)	NEMA 6-15	UL
3305154	240	1	2180	95°-122°F (35°-50°C)	230°F (110°C)	NEMA 6-15	UL

PRODUCT DIMENSIONS





CIRCULATION HEATERS

Zerostart®

TOPSTART

c UL us LISTED

CE Models Available Upon Request

Circulates warm coolant throughout the engine to provide even heat distribution.

APPLICATION(S)

- Mid to large size engines
- Gensets
- Large stationary equipment

TYPE OF HEATING

- Forced Flow

FEATURES

- Integrated, gland-less circulation pump Flow rate: 1.6 to 2m³/h to 3m height manometer (7 to 8.8 gpm at 4.7 PSI)
- Integrated, gland-less circulation pump
- Die cast aluminum housing
- PA66 electrical cover and supports base
- Available power 0.5 to 12kw *120, 208, 230, 240, & 480V* 50 or 60 Hz
- 1 & 3 phase
- Adjustable, regulating thermostat 32-176°F (0-80°C)
- Safety thermostat 230°F (110°C), manual reset rated at 25A
- 4.9' (150cm) power cable
- Mounting & connection (3/4" NPT or BSP) kit included

Part No.	Hertz	Volts	Phase	Watts	Regulating Thermostat	Safety Thermostat	Control Box	Plug Type	Certifi-cations
3301004	60	120	1	2000	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	NEMA L5-30	UL
3301109	60	208	1	2500	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	B - NEMA 6-15	UL
3301009	60	208	1	2500	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	B - NEMA 6-15	UL
3301010	60	208	1	3000	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	D - NEMA 6-20	UL
3301110	60	208	1	3000	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	D - NEMA 6-20	UL
3301011	60	208	1	4000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301012	60	208	1	6000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301013	60	208	1	9000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301014	60	208	1	12000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301019	60	240	1	2720	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	B - NEMA 6-15	UL
3301020	60	240	1	3270	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	D - NEMA 6-20	UL
3301021	60	240	1	4360	32-176°F (0-80°C)	230°F (110°C) with manual reset	No	Blunt Wire	UL
3301022	60	240	1	4360	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301026	60	240	3	4360	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301023	60	240	1	6530	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301027	60	240	3	6530	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301024	60	240	1	9800	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301028	60	240	3	9800	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301025	60	240	1	13100	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301029	60	240	3	13100	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301046	60	480	1	4000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301050	60	480	3	4000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301047	60	480	1	6000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301051	60	480	3	6000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301048	60	480	1	9000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301052	60	480	3	9000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301049	60	480	1	12000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL
3301053	60	480	3	12000	32-176°F (0-80°C)	230°F (110°C) with manual reset	Yes	Blunt Wire	UL

Zerostart®

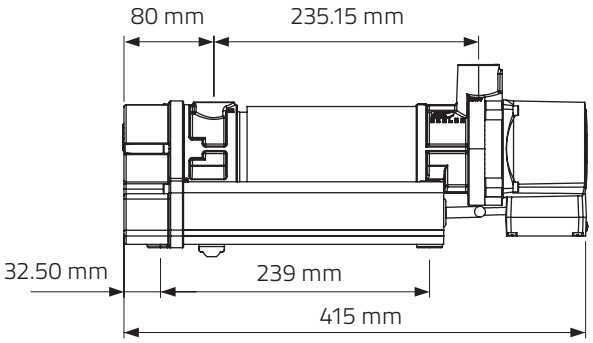
TOPSTART

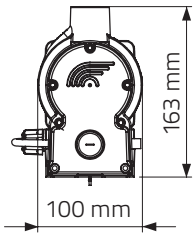
c UL us LISTED

CE Models Available Upon Request

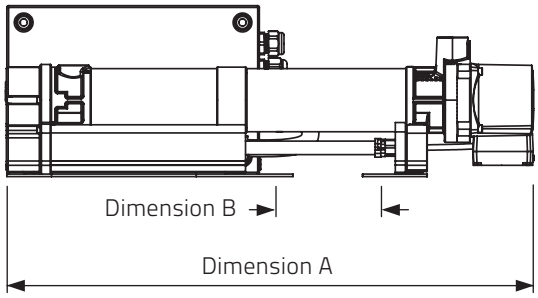
PRODUCT DIMENSIONS

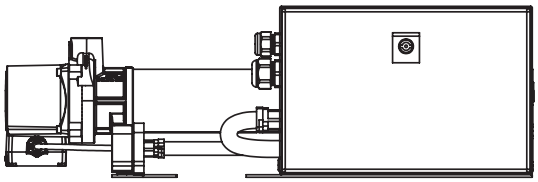
Circulation Heater

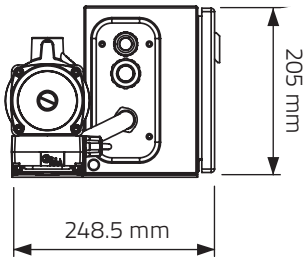




Circulation Heater with Control Box







DIMENSIONS

	4 kW	6 kW	9 kW	12 kW
Dimension A	448.5 mm	630 mm	780 mm	1050 mm
Dimension B*	340 mm	122.5 mm	272.5 mm	542.5 mm

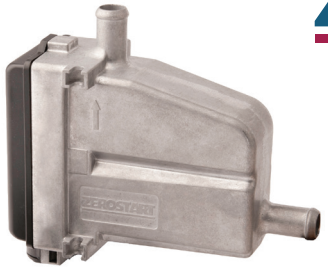
*Mounting hole distance (center to center)

CIRCULATION HEATERS

NEW PRODUCT

Zerostart®

TANK HEATER



Circulation tank heaters provide dependable pre-heating for engine starts in all temperatures by circulating warmed coolant throughout the engine.

APPLICATIONS

- Diesel & Gas Gensets
- Compressors
- Agriculture

TYPE OF HEATING

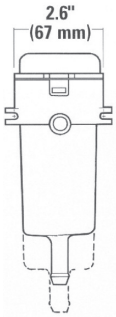
- Thermosiphon

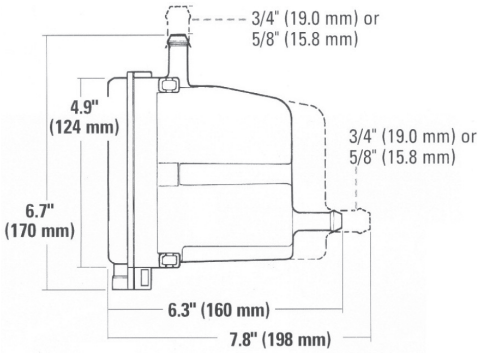
FEATURES

- 750–2250 Watts 120–240 Volts 5/8"–3/4" Inlet/Outlet Hose Barbs
- Regulating Thermostat Ranges
  60°-80°F (16°-27°C)
  80°-100°F (27°-38°C)
  100°-120°F (38°-49°C)
- Secondary safety thermostat with automatic reset
- Rugged die cast, one-piece, aluminum construction
- Water resistant terminal end cap
- Permanently connected power cord
- Designed for easy installation with bottom and top mounting options
- CE approved with European plug models available

Part No.	Replacement Part No.	Volts	Watts	Amps	Inlet/Outlet Size	Power Cord Length	Tank Size	Plug Type	UL Listed	CSA
Regulating Thermostat: On 60°F (16°C) / Off 80°F (27°C)										
3305028	3309061	120	750	6.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	-	Yes
3309061		120	750	6.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	Yes	Yes
3309062		120	750	6.3	5/8"	12' (3.6m)	Small	A - NEMA 5-15	Yes	Yes
3305040	3309091	120	1000	8.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	-	Yes
3309091		120	1000	8.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	Yes	Yes
3309092		120	1000	8.3	5/8"	12' (3.6m)	Small	A - NEMA 5-15	Yes	Yes
3309067		120	1500	12.5	5/8"	5' (1.5m)	Small	C - NEMA 5-20	Yes	Yes
3309068		120	1500	12.5	5/8"	12' (3.6m)	Small	C - NEMA 5-20	Yes	Yes
3305052		120	1500	12.5	3/4"	5' (1.5m)	Large	A - NEMA 5-15	-	Yes
3309160		120	1500	12.5	3/4"	5' (1.5m)	Large	C - NEMA 5-20	Yes	Yes
3309161		120	1500	12.5	3/4"	12' (3.6m)	Large	C - NEMA 5-20	Yes	Yes
3305004		120	2250	18.8	3/4"	7' (2m)	Large	C - NEMA 5-20	-	Yes
3309073		240	750	3.1	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309074		240	750	3.1	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309094		240	1000	4.2	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309095		240	1000	4.2	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309079		240	1500	6.3	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309080		240	1500	6.3	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309163		240	1500	6.3	3/4"	5' (1.5m)	Large	B - NEMA 6-15	Yes	Yes
3309164		240	1500	6.3	3/4"	12' (3.6m)	Large	B - NEMA 6-15	Yes	Yes
3309166		240	2250	9.4	3/4"	5' (1.5m)	Large	B - NEMA 6-15	Yes	Yes
3309167		240	2250	9.4	3/4"	12' (3.6m)	Large	B - NEMA 6-15	Yes	Yes

PRODUCT DIMENSIONS





Zerostart®

Part No.	Replacement Part No.	Volts	Watts	Amps	Inlet/Outlet Size	Power Cord Length	Tank Size	Plug Type	UL Listed	CSA
Regulating Thermostat: On 80°F (27°C) / Off 100°F (38°C)										
3305032	3309063	120	750	6.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	-	Yes
3309063		120	750	6.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	Yes	Yes
3309064		120	750	6.3	5/8"	12' (3.6m)	Small	A - NEMA 5-15	Yes	Yes
3305044	3309040	120	1000	8.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	-	Yes
3309040		120	1000	8.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	Yes	Yes
3309093		120	1000	8.3	5/8"	12' (3.6m)	Small	A - NEMA 5-15	Yes	Yes
3309069		120	1500	12.5	5/8"	5' (1.5m)	Small	C - NEMA 5-20	Yes	Yes
3309070		120	1500	12.5	5/8"	12' (3.6m)	Small	C - NEMA 5-20	Yes	Yes
3309043		120	1500	12.5	3/4"	5' (1.5m)	Large	C - NEMA 5-20	Yes	Yes
3305056		120	1500	12.5	3/4"	5' (1.5m)	Large	A - NEMA 5-15	-	Yes
3309162		120	1500	12.5	3/4"	12' (3.6m)	Large	C - NEMA 5-20	Yes	Yes
3309075		240	750	3.1	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309076		240	750	3.1	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309048		240	1000	4.2	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309096		240	1000	4.2	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309081		240	1500	6.3	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309082		240	1500	6.3	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309052		240	1500	6.3	3/4"	5' (1.5m)	Large	B - NEMA 6-15	Yes	Yes
3309165		240	1500	6.3	3/4"	12' (3.6m)	Large	B - NEMA 6-15	Yes	Yes
3309055		240	2250	9.4	3/4"	5' (1.5m)	Large	B - NEMA 6-15	Yes	Yes
3309056		240	2250	9.4	3/4"	12' (3.6m)	Large	B - NEMA 6-15	Yes	Yes

Part No.	Replacement Part No.	Volts	Watts	Amps	Inlet/Outlet Size	Power Cord Length	Tank Size	Plug Type	UL Listed	CSA
Regulating Thermostat: On 100°F (38°C) / Off 120°F (49°C)										
3305036	3309065	120	750	6.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	-	Yes
3309065		120	750	6.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	Yes	Yes
3309066		120	750	6.3	5/8"	12' (3.6m)	Small	A - NEMA 5-15	Yes	Yes
3305048	3309042	120	1000	8.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	-	Yes
3309041		120	1000	8.3	5/8"	12' (3.6m)	Small	A - NEMA 5-15	Yes	Yes
3309042		120	1000	8.3	5/8"	5' (1.5m)	Small	A - NEMA 5-15	Yes	Yes
3309071		120	1500	12.5	5/8"	5' (1.5m)	Small	C - NEMA 5-20	Yes	Yes
3309072		120	1500	12.5	5/8"	12' (3.6m)	Small	C - NEMA 5-20	Yes	Yes
3305060		120	1500	12.5	3/4"	5' (1.5m)	Large	A - NEMA 5-15	-	Yes
3309047		120	1500	12.5	3/4"	5' (1.5m)	Large	C - NEMA 5-20	Yes	Yes
3309047		120	1500	12.5	3/4"	5' (1.5m)	Large	C - NEMA 5-20	Yes	Yes
3309046		120	1500	12.5	3/4"	12' (3.6m)	Large	C - NEMA 5-20	Yes	Yes
3309077		240	750	3.1	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309078		240	750	3.1	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309049		240	1000	4.2	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309050		240	1000	4.2	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309083		240	1500	6.3	5/8"	5' (1.5m)	Small	B - NEMA 6-15	Yes	Yes
3309084		240	1500	6.3	5/8"	12' (3.6m)	Small	B - NEMA 6-15	Yes	Yes
3309053		240	1500	6.3	3/4"	5' (1.5m)	Large	B - NEMA 6-15	Yes	Yes
3309054		240	1500	6.3	3/4"	12' (3.6m)	Large	B - NEMA 6-15	Yes	Yes
3309057		240	2250	9.4	3/4"	5' (1.5m)	Large	B - NEMA 6-15	Yes	Yes
3309058		240	2250	9.4	3/4"	12' (3.6m)	Large	B - NEMA 6-15	Yes	Yes

CIRCULATION HEATERS

Zerostart®

HIGH CAPACITY

APPLICATIONS

- Industrial
- Big Bore Engines (14L+)

TYPE OF HEATING

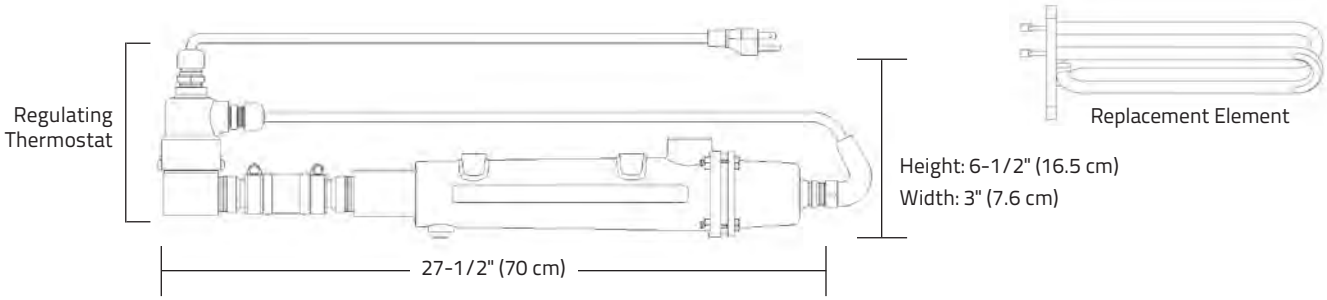
- Thermosiphon

FEATURES

- Low Watt-Density heating elements for long life
- Overheat thermostat 205°F (96°C) to 165°F (74°C)
- Available with & without a regulating thermostat
- NRTL/C approval (complies with UL/CSA)
- Four-bolt flange for easy element replacement
- 14 gauge SJOW cord (16 in. length – 40.6cm) is abrasion, oil, and grease resistant
- Nylon check valve
- 1" NPT inlet and outlet / 1/4" NPT drain

Part No.	Volts	Watts	Amps	c US	Regulating T-Stat Service Kit	Replacement Element	Plug Type
Regulating Thermostat On/Off – 80°/100°F (27°/38°C)							
3300011	120	1500	12.5	Yes	3300094	3300051	A - NEMA 5-15
3300012	120	2000	16.7	Yes	3300094	3300052	C - NEMA 5-20
3300015	120	2250	18.8	Yes	3300094	3300055	C - NEMA 5-20
3300014	240	2000	8.4	Yes	3300094	-	B - NEMA 6-15
3300018	240	3000	12.5	Yes	3300094	-	B - NEMA 6-15
Regulating Thermostat On/Off – 100°/120°F (38°/49°C)							
3300021	120	1500	12.5	Yes	3300095	3300051	A - NEMA 5-15
3300022	120	2000	16.7	Yes	3300095	3300052	C - NEMA 5-20
3300025	120	2250	18.8	Yes	3300095	3300055	C - NEMA 5-20
3300030	240	4000	16.6	Yes	3300095	3300060	D - NEMA 6-20
Regulating Thermostat On/Off – 120°/140°F (49°/60°C)							
3300031	120	1500	12.5	Yes	3300096	3300051	A - NEMA 5-15
3300032	120	2000	16.7	Yes	3300096	3300052	C - NEMA 5-20
3300035	120	2250	18.8	Yes	3300096	3300055	C - NEMA 5-20
3300037	240	2500	10.4	Yes	3300096	-	B - NEMA 6-15
3300039	240	3500	14.6	Yes	3300096	-	B - NEMA 6-15

PRODUCT DIMENSIONS

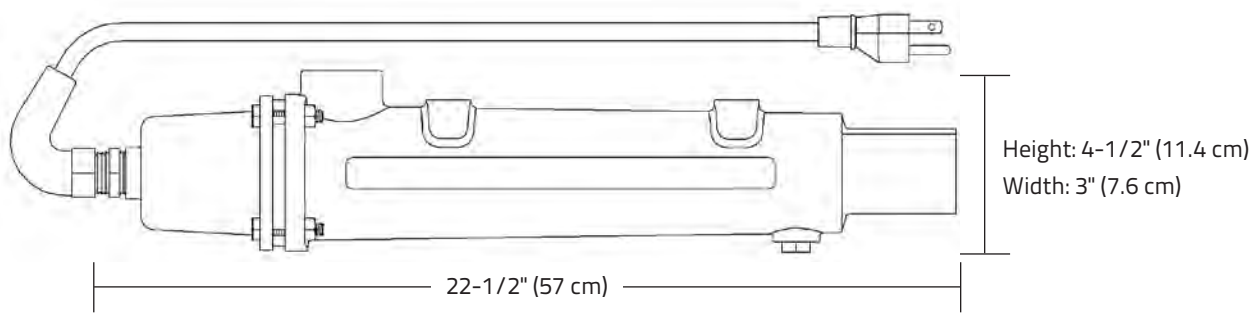


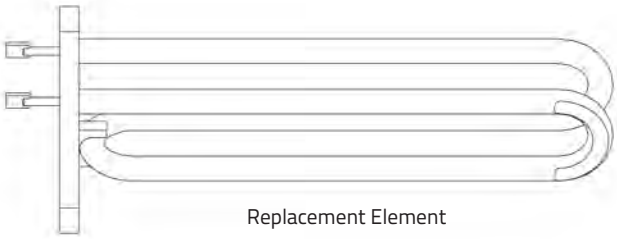
Zerostart®

HIGH CAPACITY OVERHEAT THERMOSTAT

Part No.	Volts	Watts	Amps	c US	Replacement Element	Plug Type
Overheat Thermostat (No Regulating Thermostat)						
3300001	120	1500	12.5	Yes	3300051	A - NEMA 5-15
3300041	120	1500	12.5	No	3300051	Blunt Wire
3300002	120	2000	16.7	Yes	3300052	C - NEMA 5-20
3300042	120	2000	16.7	No	3300052	Blunt Wire
3300005	120	2250	18.8	Yes	3300055	C - NEMA 5-20
3300045	120	2250	18.8	No	3300055	Blunt Wire
3300007	240	2500	10.4	Yes	-	B - NEMA 6-15

PRODUCT DIMENSIONS





Replacement Element

REGULATING THERMOSTATS

NTRL/C

- Fits all high capacity circulation heaters
- Includes: Housing, thermostat, o-ring, & t-stat cord

Part No.	T-Stat On	T-Stat Off
3300061	80°F (27°C)	100°F (38°C)
3300062	100°F (38°C)	120°F (49°C)
3300063	120°F (49°C)	140°F (60°C)

CIRCULATION HEATERS

Zerostart®

THERMOSTART

c UL us LISTED

CE

Models Available Upon Request

APPLICATIONS

- Medium gensets

TYPE OF HEATING

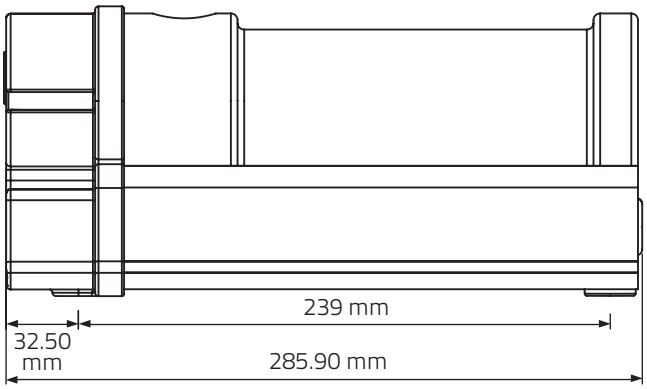
- Thermosiphon

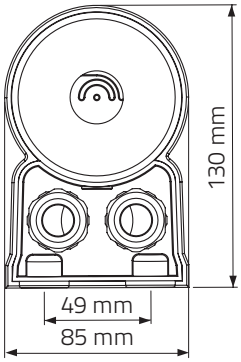
FEATURES

- Compact and easy to install – vertical mounting
- Aluminum housing
- Available power
  1.5 to 4kw120,
  208, 230, 240, & 240V
  50 or 60 Hz
- Regulating adjustable thermostat 32-176°F (0-80°C)
- Safety thermostat 230°F (110°C), manual reset rated at 25A
- 4.9' (150cm) power cable
- Mounting kit included

Part No.	Volts	Phase	Watts	Regulating Thermostat	Safety Thermostat	Plug Type	Certifications
3301125	120	1	2000	32°-176°F (0°-80°C)	230°F (110°C)	NEMA L5-30	UL
3301131	208	1	3000	32°-176°F (0°-80°C)	230°F (110°C)	NEMA 6-20	UL
3301132	208	1	4000	32°-176°F (0°-80°C)	230°F (110°C)	NEMA L6-30	UL
3301138	240	1	3270	32°-176°F (0°-80°C)	230°F (110°C)	NEMA 6-20	UL
3301139	240	1	4360	32°-176°F (0°-80°C)	230°F (110°C)	NEMA L6-30	UL

PRODUCT DIMENSIONS





CIRCULATION HEATERS

Zerostart®

SERIES 8000

APPLICATIONS

- Light-duty

TYPE OF HEATING

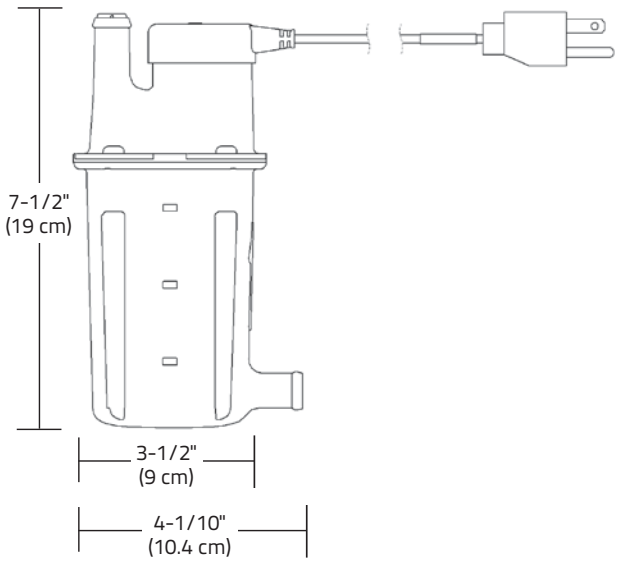
- Thermosiphon

FEATURES

- Cylindrical design of heater and universal mounting strap allow for convenient, new or retrofit applications.
- Integral check valve supports extensive range of plumbing configurations.
- Top-side location of power cord connection provides damage protection from road debris and chemicals.
- New detachable power cord enhances ease of installation.
- Temperature sensing safety thermostat provides overheat protection 147°F (64°C) ON - 185°F (85°C) OFF.

Part No.	Watts	Volts	Amps	Plug Type	Inlet/Outlet Size	Replacement Cord 18"	Replacement Cord 60"
3308001	750	120	6.3	A	5/8"	3309001	3309002
3308002	1000	120	8.3	A	5/8"	3309001	3309002
3308003	1500	120	12.5	A	5/8"	3309001	3309002

PRODUCT DIMENSIONS



CIRCULATION HEATERS

Zerostart®

SERIES 41

APPLICATIONS

- Industrial
- Agriculture
- Off-road

TYPE OF HEATING

- Thermosiphon

FEATURES

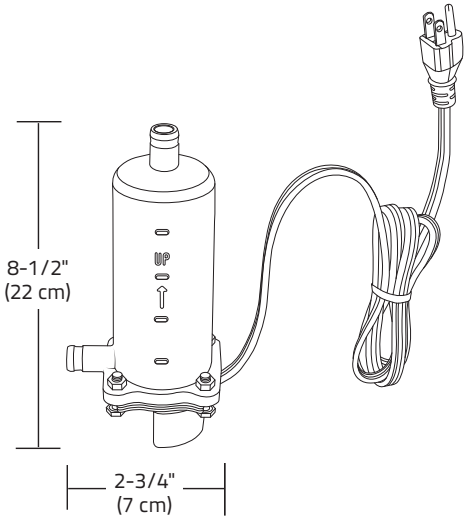
- Thermostatically controlled
- Vertical installation only
- Rugged cast aluminum construction is corrosion and impact resistant.
- Copper heating element provides excellent heat transfer.
- Replaceable element and thermostat

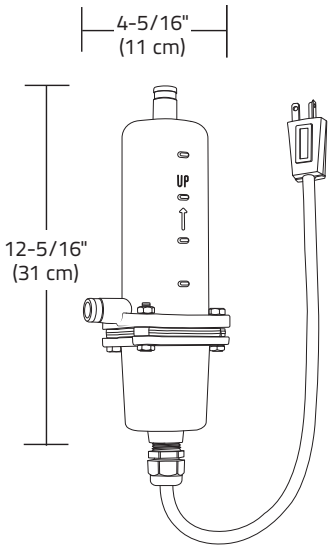
Part No. 2204010, 2204029, 2204037

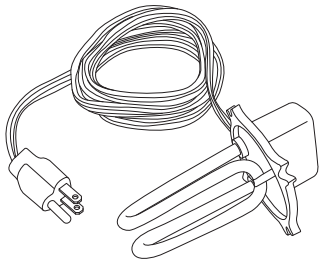
Part No. 3300091

Part No.	Watts	Volts	Amps	Plug Type	Inlet/Outlet Size	Replacement Element	Thermostat	Cord Length
Regulating Thermostat – Open 190°F (88°C) / Closes 151°F (66°C)								
2204010	750	120	6.25	A - NEMA 5-15	5/8"	2204061	2204266	5' (1.5m)
2204029	1000	120	8.33	A - NEMA 5-15	5/8"	2204088	2204266	5' (1.5m)
2204037	1500	120	12.5	A - NEMA 5-15	5/8"	2204096	2204266	5' (1.5m)
Regulating Thermostat – Open 165°F (74°C) / Closes 205°F (96°C)								
3300091	2000	120	16.7	C - NEMA 5-20	5/8"	3300093	3300097	22" (56cm)

PRODUCT DIMENSIONS







Replacement Element

CIRCULATION HEATERS

LOWER RADIATOR HOSE HEATER

FEATURES

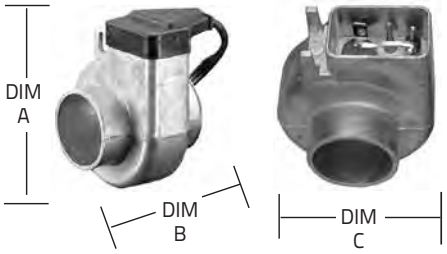
- Installs in minutes in non-corrugated lower radiator hose
- Available in five hose sizes for best coverage
- Thermostatically protected (245°F/118°C maximum heater temperature)
- Replaceable cordset

Part No.	Fits hose size (ID)	Watt	Volt	Dim A	Dim B	Dim C
3200001	1"	375	120	3.5"	3"	2.5"
3200002	1-1/4"	375	120	3.5"	3"	2.5"
3200003	1-1/2"	600	120	4"	3"	3"
3200004	1-3/4"	600	120	4"	3"	3"
3200005	2"	600	120	4.25"	3"	3.25"

Note: All dimensions reflect approximate installation space requirements, not exact product measurements. Dimension "A" includes cord.

INSTALLATION

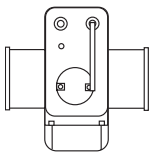
- Hose must have a minimum 15° rise.
- Must be installed in smooth, molded hose.
- Must have direct access to engine water jacket



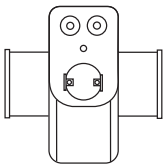
REPLACEMENT CORDSETS

- 120 Volt AC, 42" (112CM)

Part No. 3600009
For heaters with this configuration.
Heater stamped with Model C
(example 150C) on bottom of unit.



Part No. 3600047
For heaters with this configuration.
Heater stamped with Model D
(example 150D) on bottom of unit.

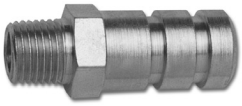


NOTE: NOT recommended for automotive or light truck applications.

ACCESSORIES

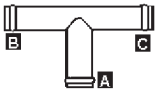
The small size of some engine compartments, especially vehicles with transverse engines, may make circulation heater installation difficult even though it may be listed as a heating option. The following accessories are available for use with circulation heaters:

Part No. 3300085
5/8" (15.8MM) x 3/4" (19MM)
Metal "T" fitting



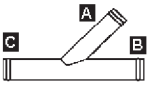
Part No. 3300086
1/4" NPT (6MM)
"A" Adapter to 5/8" (15.8MM) hose

Part No. 3300090
5/8" (15.8MM) x 3/4" (19MM)
Plastic "Y" fitting



Beaded T (Steel)

Part No.	DIM A	DIM B	DIM C
A-2321	5/8"	5/8"	5/8"
A-2323	5/8"	7/8"	7/8"
A-3600	3/4"	3/4"	3/4"
A-2322	3/4"	7/8"	7/8"



Beaded Y (Steel)

Part No.	DIM A	DIM B	DIM C
A-457	5/8"	5/8"	5/8"
A-459	3/4"	3/4"	3/4"

5 IN-LINE FUEL & FLUID WARMERS

In-Line Warming

Arctic Fox in-line warmers maintain the optimum temperature of fuel in cold weather to avoid fuel gelling and keep the engine running at peek performance. The warmer is installed before the primary fuel filter or transfer pump to avoid clogged fuel filters and fuel lines. Heating the fuel closer to the fuel filter reduces the amount of heat loss from the surface of the fuel line.

- Reduces the effects of fuel gelling in the fuel line and filter
- Minimal maintenance because there are no moving parts
- 304 Stainless steel construction
- Convenient aftermarket installation
- 6 In-Line Models

Types of Heating

Electric

Designed for 12 or 24volt systems, the in-line warmer replaces a portion of the fuel line and has a self-regulating feature that enables the heater to vary its power output in response to sensed changes in temperature at every point along the element.

Engine Coolant

Utilizes warm engine coolant and circulates it through the in-line warmer to keep fuel at the optimum operating temperate in cold weather. Various models to choose from for utilization prior to startup and/or during engine operation.

Learn More

Go to phillipsandtemro.com

Video

Diesel Fuel Gelling

White Paper

Cold Hard, Facts on Diesel Fuel Gelling

What is the best in-line warmer for your application?

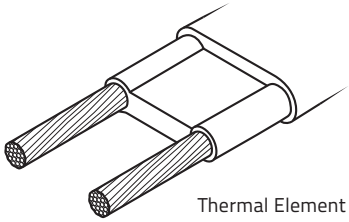
	Type of Heating		Features			Types of Fluid					
	Electric	Engine Coolant	Utilize at Start-up	Utilize During Engine Operation	Thermostat	Diesel Fuel	BioDiesel Fuel	Engine Oil	Hydraulic Fluid	Transmission Fluid	Natural Gas
Hotline	X		X		Shut-Off	X	X				
Midranger		X		X		X	X				
Linehauler		X	Elec. Heat Models	X		X					
I-909		X	Elec. Heat Models	X	Shut-Off	X	X				
I-15		X		X	Shut-Off	X	X				
Multi Fuel & Fluid		X		X	Shut-Off	X	X	X	X	X	
Natural Gas		X		X	Shut-Off						X

Optimize engine performance by adding an in-tank warmer, circulation heater or engine block heater.

IN-LINE FUEL & FLUID WARMERS

HOTLINE® ELECTRIC

The HOTLINE fuel heater has a self-regulating thermal element that provides heat to fuel for cold weather starting. The in-line heater demonstrates excellent thermal performance, long service life, easy installation and low operating costs.



FEATURES

- B5-B10 Diesel Fuel Compatible
- Diesel Fuel Suction Lines
- Length: 2-12' (0.6-3.7 m)
- Hose I.D. 5/8"
- Insulated electric heat tape enclosed in a reinforced fuel line
- Thaw gelled diesel fuel in 3-4 minutes & eliminate fuel waxing on the road
- Modular design allows for easy installation and service
- Works in conjunction with coolant heaters for complete fuel system protection
- Kits are complete with all electrical components and wiring harness

APPLICATIONS

- Off-Road, Agriculture, & Construction
- Class 5 through 8 Trucks
- Power Generators

TYPE OF HEATING

- Electric

OPTIONS AVAILABLE

- Regulating Thermostat

POWER	600 WATT		450 WATT		300 WATT		150 WATT	
Length	12 Volt	24 Volt	12 Volt	24 Volt	12 Volt	24 Volt	12 Volt	24 Volt
12' / 3.7m	D3085-1180	D3085-2180	D3085-1152	D3085-2152	D3085-1138	D3085-2138	—	—
8.5' / 2.6m	D3085-1168	D3085-2168	D3085-1146	D3085-2146	D3085-1133	D3085-2133	—	—
6.0' / 1.8m	—	—	D3085-1141	—	D3085-1130	D3085-2130	D3085-1126	D3085-2126
4.5' / 1.4m	—	—	—	—	D3085-1128	D3085-2128	D3085-1122	D3085-2122
2.0' / 0.6m	—	—	—	—	—	—	D3085-1118	D3085-2118
MAXIMUM CURRENT DRAW / SUSTAINED AMPERAGE								
	45	23	31	16	21	11	10	5
MINIMUM ALTERNATOR CAPACITY								
	130	87	105	70	85	55	75	45

Note: Total system load analysis is required for accurate battery/ charging system specification. Refer to maximum sustained current draw and consult your vehicle manufacturer for advisement whenever adding any aftermarket auxiliary current load.

OPTIONAL REGULATING THERMOSTAT KIT

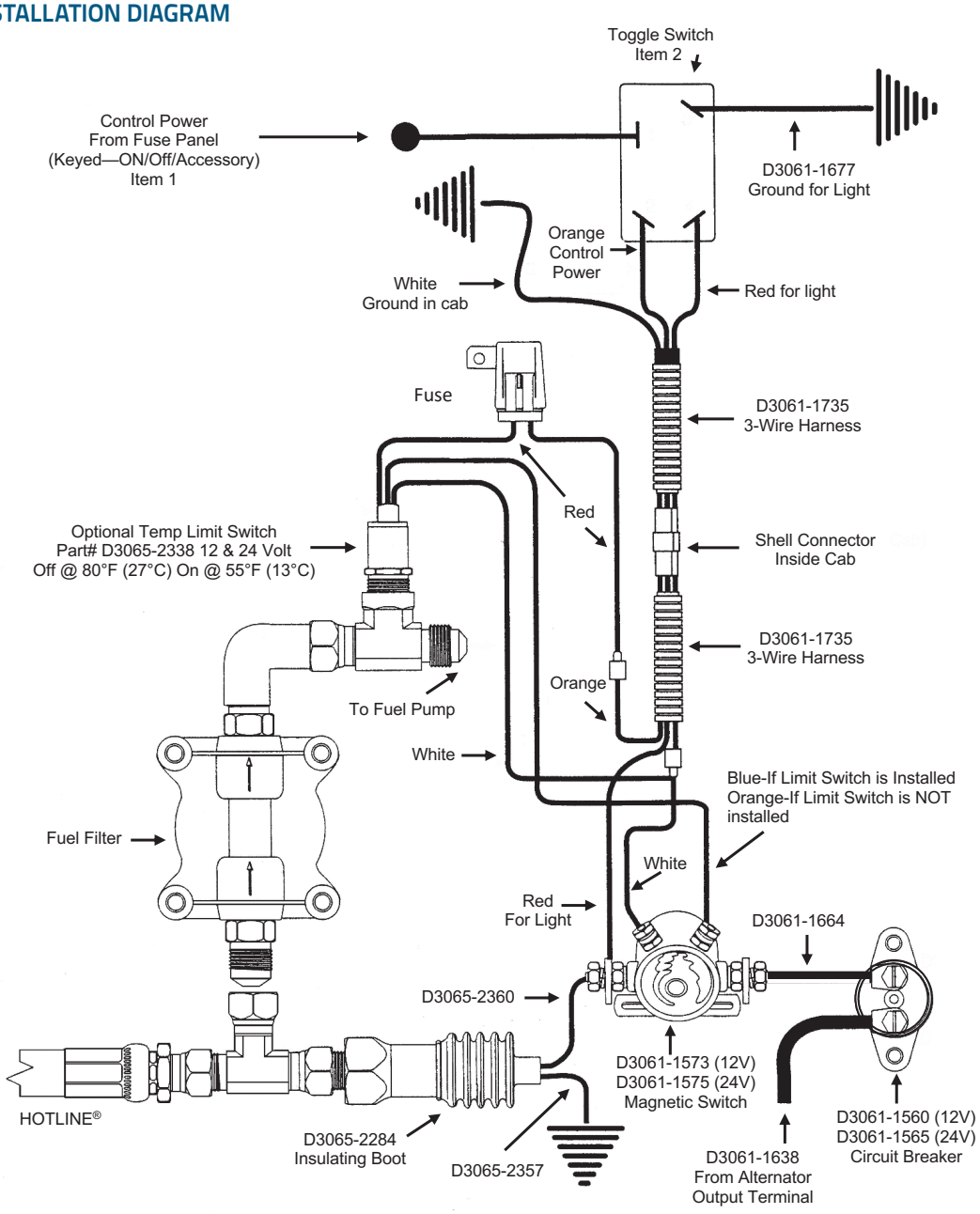
- Maintain Lower Temperature
- Limits Upper End of Operational Heat Tape
- Recommended with 600 Watt HOTLINE

Part Number	Off Temp	On Temp	Amp Draw	Volts
D3065-2338	80F / 27 C	55 F / 13C	Negligible	12, 24DC

IN-LINE FUEL & FLUID WARMERS

HOTLINE® ELECTRIC

INSTALLATION DIAGRAM



SERVICE PARTS

Part Number	Description
D3061-1677	Black Jumper 14 Gauge
D3061-1582 D3061-1584	12V Lighted Toggle Switch 24V Lighted Toggle Switch
D3065-2338	Optional Thermostat 55-80°F (13-27°C) Kit
D3061-1735	3-Wire Harness Kit
D3065-2360	Wire Jumper Magnetic Switch
D3061-1664	#10 Jumper Main Power

Part Number	Description
D3061-1573 D3061-1575	12V Magnetic Switch 24V Magnetic Switch
D3061-1560 D3061-1565	12V 60 Amp Circuit Breaker 24V 60 Amp Circuit Breaker
D3061-1638	#4 Jumper Main Power–47"
D3065-2357	Ground Rubber Wire 96" (2.4m)
D3065-2284	Insulating Boot

IN-LINE FUEL & FLUID WARMERS

MIDRANGER

FEATURES

- Diesel, BioDiesel & Fluids Compatible
- 8-3/4" L x 3-1/4" H (53cm L x 20cm H)
- 9 Tube Design with 3 Half Baffles
- 304 Stainless Steel Construction
- No Moving Parts
- Easy Installation
- Maintenance Free
- Recommend Coolant Shut-Off Valve for Warm Weather Application to Avoid Fuel Overheating

APPLICATIONS

- Diesel Engines (Up to 5L)
- Small – Power Generators
- Construction Equipment
- Light Duty Vehicle
- Compact Diesel Equipment

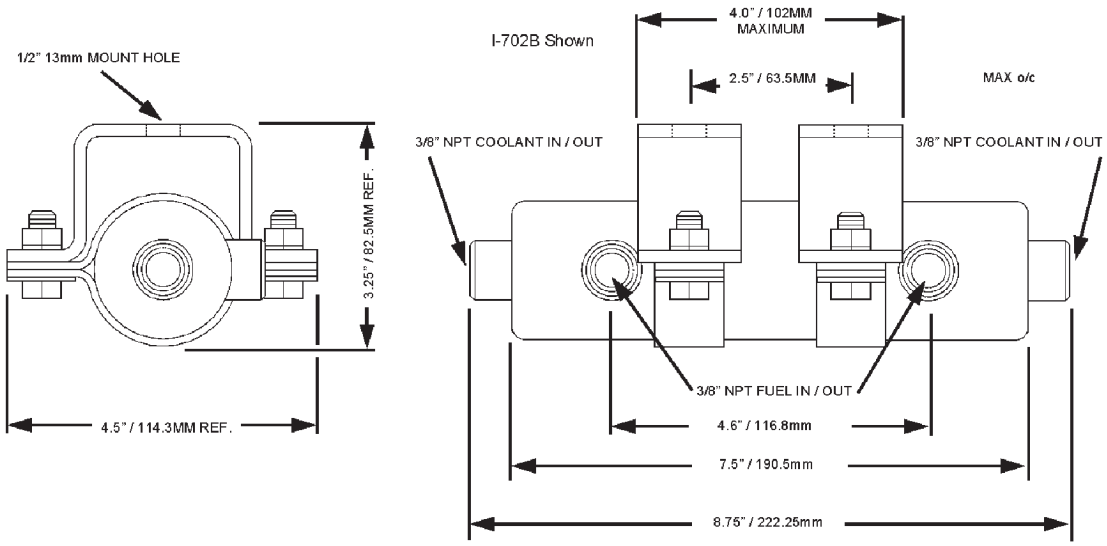
TYPE OF HEATING

- Warm Coolant

Part No.	Fuel Flow GPM/LPM	Fuel Port (NPT)	Coolant Port (NPT)	Length	Height	Notes
I-702	0.1-0.5 / 0.4-1.9	3/8" NPT	3/8" NPT	8-3/4" (53cm)	3-1/4" (20cm)	
I-702B	0.1-0.5 / 0.4-1.9	3/8" NPT	3/8" NPT	8-3/4" (53cm)	3-1/4" (20cm)	Bracket Kit

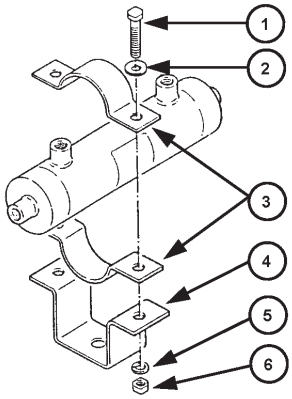
Heat rise data is available on Page 133

PRODUCT DIMENSIONS



BRACKET SERVICE PARTS

Image	Part No.	Description	Quantity
1	A-321	3/8" UNC X 1" Long Bolt	4
2	A-311	3/8" SAE Flat Washer	4
3	A-307	Bracket – Half Moon	4
4	A-308	U-Bracket	2
5	A-310	3/8" Split Lock Washer	4
6	A-309	3/8" UNC Hex Nut	4



IN-LINE FUEL & FLUID WARMERS

LINEHAULER

FEATURES

- Diesel Compatible
- 14-3/4" L x 5" H (37.5cm L x 13cm H)
- 9 Tube Design
- 304 Stainless Steel Construction

OPTIONS AVAILABLE

- Shut-off Thermostat – Avoid Fuel Over Heating, All Season Operation
- Electric Preheat – 120 VAC & 240VAC, Cordset Not Included
- Dual Fuel Inlet – Allows for simplified plumbing when retrofitting single to dual draw systems
- Check Valve – Eliminates fuel drain back

TYPICAL APPLICATIONS

- Diesel Engines (Up to 10L)

TYPE OF HEATING

- Warm Coolant

Part No.	Check Valve	Shut-Off Thermostat	Fuel Inlet	Fuel Port (NPT)	Coolant Port (NPT)	Notes
I-703	–	–	–	3/8"	1/2"	
I-703B	–	–	–	3/8"	1/2"	Bracket
I-703BT	Yes	78°-95°F	–	1/2"	1/2"	Bracket, Thermostat
I-703BTEH	Yes	78°-95°F	Single	1/2"	1/2"	Bracket, Thermostat, Electric Heat 120 VAC, Maximum current draw 1/2 A, Cordset sold separately
I-704B	–	–	–	1/2"	1/2"	Bracket
I-704BT	–	78°-95°F	–	1/2"	1/2"	Bracket, Thermostat
I-704BTEH	–	78°-95°F	Single	1/2"	1/2"	Bracket, Thermostat, Electric Heat 120 VAC, Cordset sold separately
I-705B	Yes	–	Dual	1/2"	1/2"	Bracket
I-705BT	Yes	78°-95°F	Dual	1/2"	1/2"	Bracket, Thermostat
I-706B	–	–	Dual	1/2"	1/2"	Bracket
I-706BT	–	78°-95°F	Dual	1/2"	1/2"	Bracket, Thermostat
I-714BT	–	104-125°F	–	1/2"	1/2"	Bracket, Thermostat
I-714BTEH-2	–	104-125°F	–	1/2"	1/2"	Bracket, Thermostat, Electric Heat 240 VAC, Cordset sold separately
I-724BT	–	104-125°F	–	1/2"	1/2"	Bracket, Thermostat, Electric Heat 120 VAC can be added

Heat rise data is available on Page 133

LINEHAULER CORDSETS CHART

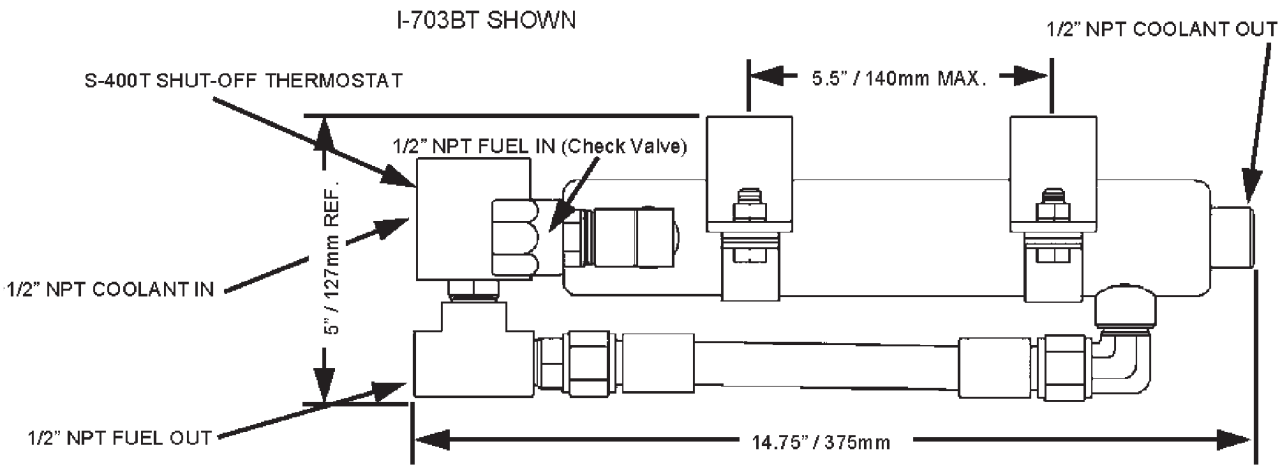
Part No.	Description	Volts	Length 1	Length 2	Silicone Connector	Plug Type
8608865	WP Single Cord	120	14' (4.3 m)	-	K	A (WP) - NEMA 5-15
8605122	WP Single Cord	240	7' (1 m)		K	B (WP) - NEMA 6-15
3610247	WP Parallel Cord	120	10' (3 m)	10' (3 m)	K	A (WP) - NEMA 5-15
8608423	WP Parallel Cord	120	14' (4.3 m)	14' (4.3 m)	K	A (WP) - NEMA 5-15

Cordset diagrams available in HEAVY DUTY CORDSET section.

IN-LINE FUEL & FLUID WARMERS

LINEHAULER

PRODUCT DIMENSIONS



BRACKET SERVICE PARTS

Image	Part No.	Description	Quantity
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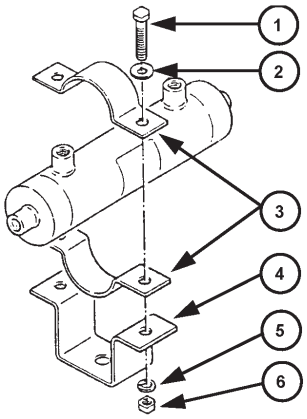
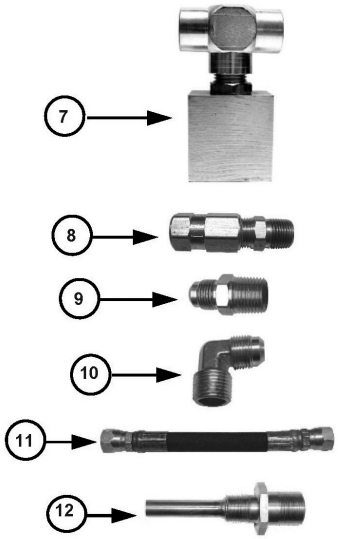
2	A-311	Flat Washer 3/8" SAE	4
3	A-307	Bracket - Half Moon	4
4	A-308	U-Bracket	2
5	A-310	Split Lock Washer 3/8"	4
6	A-309	Uhex Nut 3/8"	4



LINEHAULER SERVICE PARTS

Image	Part No.	Description	Quantity
7	S-400T	Shut-Off Thermostat with Tee	1
8	A-335	Check Valve 1/2" NPT	1
9	A-287	#8 JIC x 1/2" NPT Male Connector	1
10	A-281	#8 JIC x 1/2" NPT 90° Elbow	1
11	A-703H-B	#8 Braided Hose, (2) #8 JIC Straight Swivel	1
12	A-120EK-1	63W 120V Electric Heat Element	1



IN-LINE FUEL & FLUID WARMERS

HEAT RISE DATA COMPARISON

MIDRANGER (I-702)

LINEHAULER (I-703)

			Midranger		Linehauler	
	Fuel Flow Rate		Heat Rise		Heat Rise	
Fuel Temp	GPM	LPM	°F	°C	°F	°C
10°F / -12°C	0.1	0.4	88	31	104	40
	0.2	0.75	75	24	90	32
	0.3	1.1	65	18	80	27
	0.5	1.9	53	12	61	16
	1.5	5.7	28	-2	36	2
	2.5	9.5	21	-6	28	-2
0°F / -18°C	0.1	0.4	87	31	107	42
	0.2	0.75	79	26	94	34
	0.3	1.1	71	22	84	29
	0.5	1.9	49	9	66	19
	1.5	5.7	29	-1	38	3
	2.5	9.5	21	-6	28	-2
-20°F / -29°C	0.1	0.4	103	40	115	46
	0.2	0.75	88	31	105	41
	0.3	1.1	79	26	98	37
	0.5	1.9	57	14	79	26
	1.5	5.7	34	1	40	5
	2.5	9.5	24	-5	30	-1
-40°F / -40°C	0.1	0.4	112	44	127	53
	0.2	0.75	96	35	115	46
	0.3	1.1	84	29	102	39
	0.5	1.9	60	16	74	24
	1.5	5.7	32	0	43	6
	2.5	9.5	21	-6	34	1

Note: The heat rise data is based on lab testing. Actual heat rise will vary for each application & conditions.

IN-LINE FUEL & FLUID WARMERS

I-909 & I-15

Circulates warm coolant from the engines water pump warming the cold fuel as it circulates through the inline warmer. Installed before the primary fuel filter or transfer pump and prevents fuel gelling in the fuel line and filter.

FEATURES

- Diesel & BioDiesel up to B100 Compatible
- 304 Stainless Steel Construction
- Thermostatically Controlled – Prevent Fuel Overheating During All Seasons
  On 78°F Off 95°F (On 25°C Off 35°C)
- Most Versatile and Multi Purpose In-Line Warmer
- Robust design for use in extreme applications
- Mounting Brackets Included

OPTIONS AVAILABLE

- **Electric Preheat – 120VAC, 63Watt**
  Pre-heating ensures warm fuel gets directly to the fuel filter at start up (Part No. I-909BTEH-B100) Cordset sold separately.
- **Series Y-Cordset**
  Allows you to plug in the block heater and fuel heater simultaneously while the engine is off.

APPLICATIONS

- Mobile & stationary diesel engines
- On-road & off-road

TYPE OF HEATING

- Warm Coolant

I-SERIES SIZING

Fuel Warmer	Engine HP Rating
I-909	Up to 300HP
I-1518	300 to 450HP
I-1530	450-650HP

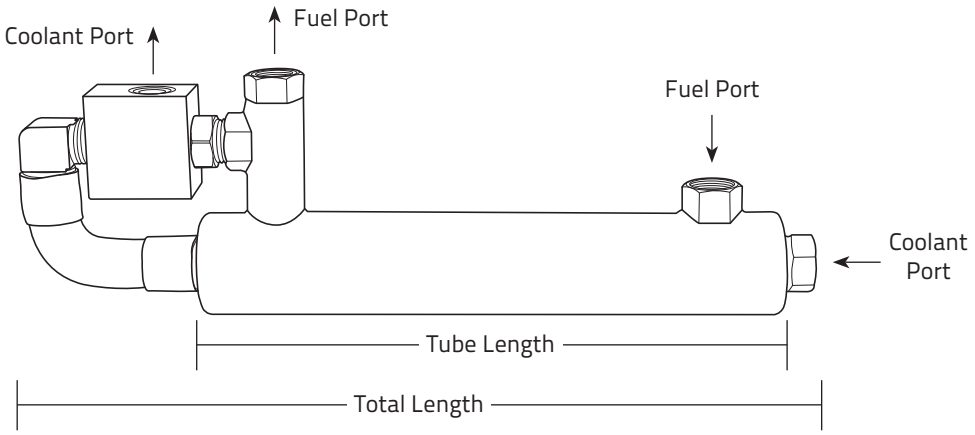
Part No.	Fuel Port	Coolant Port	Tube Length	Tube Outer Diameter	Total Length	Surface Area	Pre Heat Option
I-909BT-B100	1/2" NPT	1/2" NPT	9-3/4" 248 mm	2" 51 mm	15-1/2" 394 mm	100 in² / 645.2cm²	–
I-909BTEH-B100	1/2" NPT	1/2" NPT	9-3/4" 248 mm	2" 51 mm	18-1/2" 470 mm	100 in² / 645.2cm²	120 VAC - 63Watts CSA Certif - Does NOT include power cord.
I-1518BT-B100	1" NPT	1/2" NPT	18" 457 mm	2-3/4" 60 mm	25-1/2" 648 mm	320 in² / 2064.5cm²	–
I-1530BT-B100	1" NPT	1/2" NPT	30" 762 mm	2-3/4" 60 mm	37" 940 mm	532 in² / 3432.3cm²	–
Low Fuel Restriction Models							
I-1530BT-B100-LFR	-16 37° JIC	-8 JIC	30" 762 mm	2-3/4" 60 mm	38" 965 mm	532 in² / 3432.3cm²	–
I-1530BT-B100-LFRJ	1" NPT	1/2" NPT	30" 762 mm	2-3/4" 60 mm	37" 940 mm	532 in² / 3432.3cm²	–

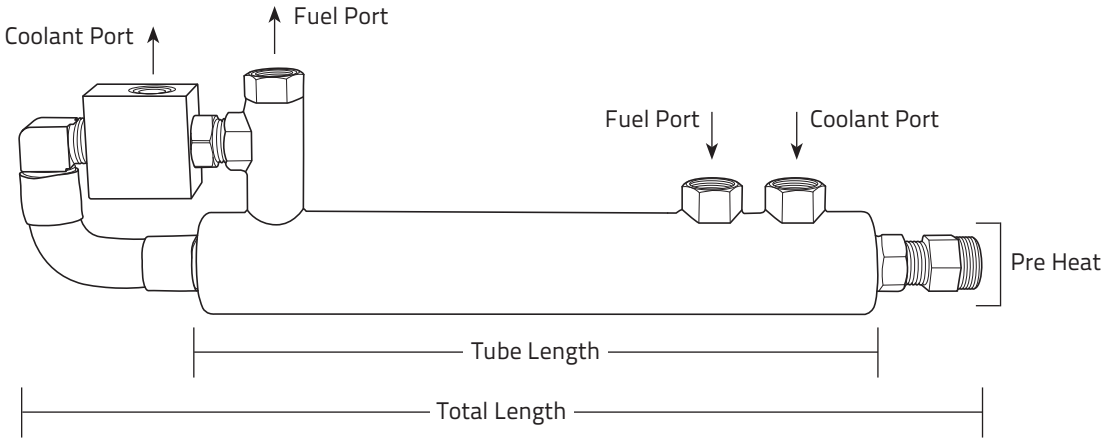
NOTE: All models made of 304 stainless steel - maximum coolant operating pressure 25 psi (172.4kPa)

IN-LINE FUEL & FLUID WARMERS

I-909 & I-15

PRODUCT DIMENSIONS





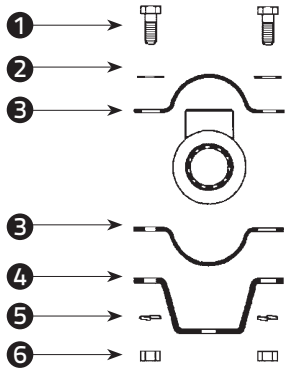
I-909 & I-15 CORDSETS CHART

Part No.	Description	Volts	Length 1	Length 2	Silicone Connector	Plug Type
8608865	WP Single Cord	120	14' (4.3 m)	-	K	A (WP) - NEMA 5-15
3610247	WP Parallel Cord	120	10' (3 m)	10' (3 m)	K	A (WP) - NEMA 5-15
8608423	WP Parallel Cord	120	14' (4.3 m)	14' (4.3 m)	K	A (WP) - NEMA 5-15

Cordset diagrams available in HEAVY DUTY CORDSET section.

BRACKET SERVICE PARTS

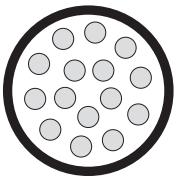
Item	Model	Part #	Description
1	All	A-321	3/8" UNC X 1.0" Long Bolt
2	All	A-311	3/8" SAE Flat Washer
3	I-909 I-1518/ I-1530	A-307 A-1356	Half Moon Bracket
4	I-909 I-1518/ I-1530	A-308 A-1361	U-Bracket
5	All	A-310	3/8" Split Lock Washer
6	All	A-309	3/8" UNC Nut



NOTE: Bracket components listed above are included with each unit in the proper quantity to support the heat exchanger.

IN-LINE FUEL & FLUID WARMERS

MULTI FUEL & FLUID



FEATURES

- Diesel, Hydraulic Fluid, Engine Oil, Transmission Fluid, BioDiesel up to B100 Compatible & Fluids
- 18"–50" (46-127cm) L
- 15 Tube Design – Longest in-line fuel warmer for maximum heat transfer
- 304 Stainless Steel Construction

TYPICAL APPLICATIONS

- Customized Systems
- Extreme Cold Weather Application

TYPE OF HEATING

- Warm Coolant

OPTIONS AVAILABLE

- 1" NPT Port for Regulating T-Stat (Page 154)

END VIEW – 15 TUBE BUNDLE

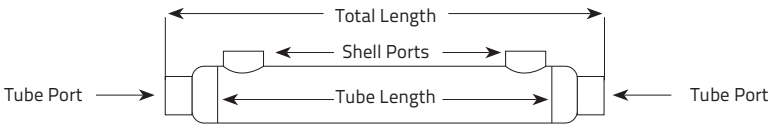
Engine coolant or other warm fluid is routed through 15 tubes welded inside the housing to provide heat. Fluid being heated is routed through the baffled shell side. All stainless steel construction eliminates corrosion and contamination of your fuel or fluid.

Part Number	Tube Port	Shell Port	Tube Length	Total Length	Surface Area
SF-1542-18	1/2" NPT	1/2" NPT	18.0" / 457mm	22.0" / 559mm	320"^{2} / 2064.5cm^2
SF-1542-24	1/2" NPT	1/2" NPT	24.0" / 610mm	28.0" / 711mm	426"^{2} / 2748.4cm^2
SF-1542-30	1/2" NPT	1/2" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} / 3432.3cm^2
SF-1562-18	1" NPT	1" NPT	18.0" / 457mm	22.0" / 559mm	320"^{2} / 2064.5cm^2
SF-1562-24	1" NPT	1" NPT	24.0"/ 610mm	28.0" / 711mm	426"^{2} / 2748.4cm^2
SF-1562-30	1" NPT	1" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} / 3432.3cm^2
SF-5139-40	1-1/2" NPT	1" NPT	40.0" / 1016mm	45.0" / 1143mm	710"^{2} / 4580.6cm^2
SF-5139-45	1-1/2" NPT	1" NPT	45.0" / 1143mm	50.0" / 1270mm	800"^{2} / 5161.3cm^2
SF-5139-50	1-1/2" NPT	1" NPT	50.0" / 1270mm	55.0" / 1397mm	885"^{2} / 5709.7cm^2
STT-2537*	1/2" NPT	1" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} / 3432.3cm^2
STT-2537-78-95**	1/2" NPT	1" NPT	30.0" / 762mm	34.0" / 864mm	532"^{2} /3432.3cm^2

NOTE: All models made of 304 Stainless Steel—Maximum Operating Pressure 25 psi (172.4kPa) – OD 2.375" (60mm)

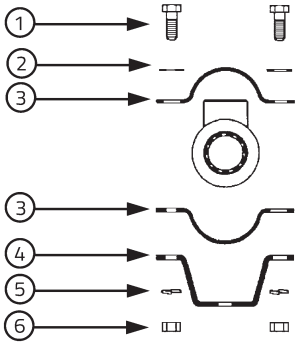
*STT-2537 Has integral coolant shutoff thermostat (104° – 125°F / 40°-52° C)
**STT-2537-78-95 Has integral coolant shutoff thermostat (78° – 95°F / 25° – 35°C)

PRODUCT DIMENSIONS



BRACKET SERVICE PARTS

Item	Qty	Description	Part #
1	4	3/8" UNC x 1.0" Long Bolt	A-321
2	4	3/8" SAE Flat Washer	A-311
3	4	Half Moon Bracket	A-1356
4	2	U-Bracket	A-1361
5	4	3/8" Split Lock Washer	A-310
6	4	3/8" UNC Nut	A-309



IN-LINE FUEL & FLUID WARMERS

NATURAL GAS

THE PROBLEM:

Natural gas is stored in tanks on board the vehicle at "tank pressures" ranging from 250 to 3600 psi (1720.7 to 24821.1kPa). A regulator is used to regulate this pressure to a value typically around 115psi (792.9kPa). As a result of the pressure drop through the regulator, the natural gas reaches temperatures nearing –200°F (-128°C). The Arctic Fox heater is utilized to prevent the natural gas from dropping below an acceptable temperature based on engine temperature and load. At low fuel rates, a thermostat may be required to prevent heating of the gas above an acceptable temperature. The Arctic Fox NG fuel warmer is designed to be installed downstream of the primary pressure regulator.

TYPICAL APPLICATIONS

- Natural Gas Engines
- Commercial Buses
- Garbage Trucks

TYPE OF HEATING

- Warm Coolant

FEATURES

- Natural Gas Compatible
- 15 Tube Design
- 304 Stainless Steel Construction
- Compact design for limited space
- Maximum Working Pressure 350 PSI (2,413kPa) – 100%
- Minimum Burst Pressure 6000 PSI (4,1369kPa)
- NPTF & Swagelok Fuel Ports Available
- Independent Lab Certified
- Mounting Brackets Included

OPTIONS AVAILABLE

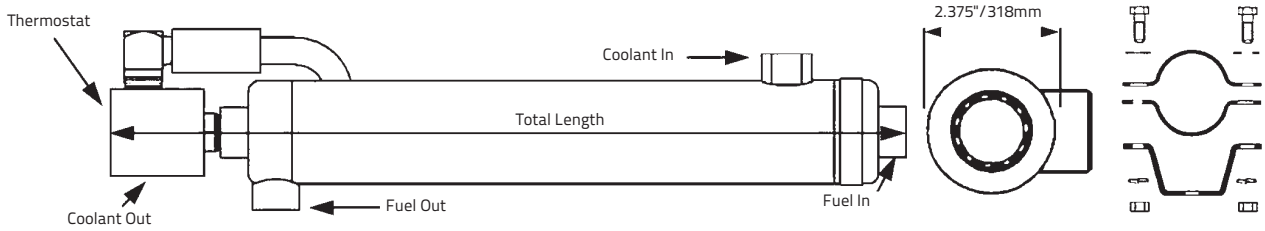
- Shut-off Thermostat

Part Number	Gas Port Size	Coolant Port Size	Tube Length	Total Length	Surface Area	Integral Thermostat
SF-2587-8	1/2" NPT	1/2" NPT	8.0"/203mm	12.0"/305mm	143"²/923cm²	NO
SF-2587-10	1/2" NPT	1/2" NPT	10.0"/254mm	14.0"/356mm	179"²/1155cm²	NO
SF-2587-12	1/2" NPT	1/2" NPT	12.0"/305mm	16.0"/406mm	214"²/1381cm²	NO
SFT-2587-1/2NPT-10	1/2" NPTF	1/2" NPT	10.0"/254mm	16.5"/419mm	179"²/1155cm²	YES
SFT-2587-1/2NPT-12	1/2" NPTF	1/2" NPT	12.0"/305mm	18.5"/469mm	214"²/1381cm²	YES
SFT-2587-8-SWGLK	1/2" Swagelok	See Note	8.0"/203mm	15.0"/381mm	143"²/923cm²	YES
SFT-2587-12-SWGLK	1/2" Swagelok	See Note	12.0"/305mm	19.0"/483mm	214"²/1381cm²	YES

NOTE: For SFT-2587 with Swagelok fuel ports, coolant ports can be 1/2", 5/8", or 3/4" hose barb—substitute desired hose barb size for the X/X designation in the part number—Example: SFT-2587-SWGLK-3/4CP will have 3/4" hose barbs included in the hardware package.

WARNING: Maximum recommended service life for SF-2587 and SFT-2587 models is 6 years from the date of manufacture as labeled on the device. Replace with new unit when the device has reached 6 years of service.

PRODUCT DIMENSIONS



6 IN-TANK FUEL & FLUID WARMERS

In-Tank Warming

Arctic Fox in-tank warmers utilize engine coolant to warm fuel or fluids to the optimum operating temperate in cold weather. Fuel & fluid can be warmed inside the tank or as it is drawn out of the tank.

- Keep fuel & fluid at optimum operating temperature
- Reduce the effects of fuel gelling in the tank
- 13 In-Tank Models - Various lengths to fit your tank application

What is the best in-tank warmer for your application?

1. Do you want the fuel or fluid warmed as it is drawn out of the tank or inside the tank?
2. What type of fuel or fluid are you warming?
3. What features does your application require?

	How it Warms		Types of Fluid					Features			
	As its drawn out of the tank	Inside the tank	Diesel Fuel	BioDiesel Fuel	Hydraulic Fluid	Oil	Water	Thermo-stat	Auxiliary Standpipe	Industrial Models	Custom Design (By Req.)
Hotfox											
Hotfox	X	X	X	X							
Hotfox w/ Standpipe	X	X	X	X					X		
Hotfox Industrial	X	X	X	X						X	
Hotfox w/ Thermostat	X	X	X	X				Shut-Off			
Hotfox w/ Thermostat & Aux. Standpipe	X	X	X	X				Shut-Off	X		
Hotfox Hydraulic		X			X						
Arctic Fox											
The Original Arctic Fox		X	X	X	X	X	X				X
The Original Arctic Fox with Standpipe	X	X	X	X					X		X
The Original Arctic Fox with Thermostat		X	X	X	X	X	X	By-Pass			X
The Original Arctic Fox with Thermostat & Standpipe	X	X	X	X				By-Pass	X		X
Other											
Mini Heat Exchanger	X				X	X					
Hydra Liner		X	X		X	X	X			X	

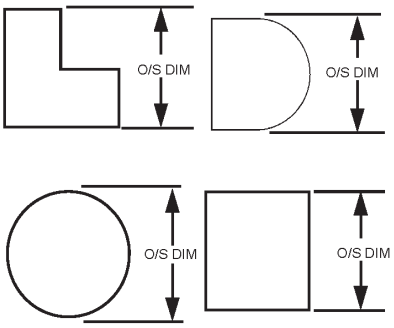
Incorporate an in-line warmer for an enhanced warming system!

How to select the correct in-tank warmer length for your application?

VERTICAL INSTALLATION

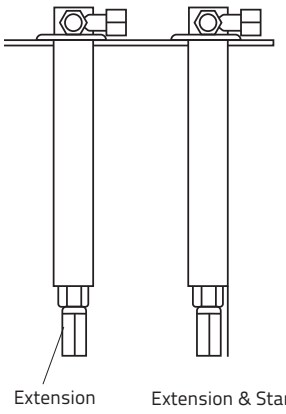
For maximum heat transfer, select the appropriate tube length for your reservoir.

Step 1 - Measure the tank depth

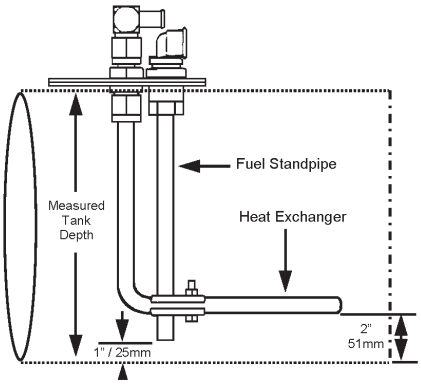


Step 2 – In tank warmers that have a fuel standpipe, the tube length should be 1" (2.5cm) shorter than the tank depth to use all available fuel in the tank.

Hotfox

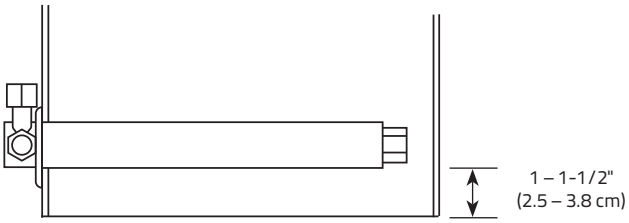


The Original Arctic Fox Warmer

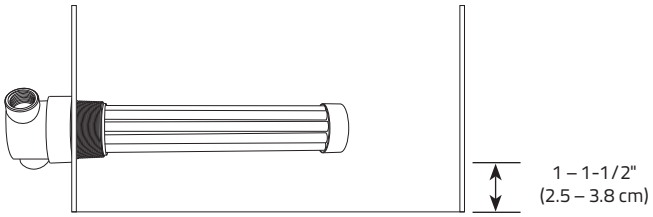


HORIZONTAL INSTALLATION

To maximize heat transfer, install the in-tank warmer 1" (2.5cm) from the bottom of the tank. A thread-in adapter (A-1721) or weld-in adapter (A-2060) must be used to provide a leak proof installation.



Hotfox



Hydra Liner

IN-TANK FUEL & FLUID WARMERS

HOTFOX WITH SHUT-OFF THERMOSTAT

Get the fuel warming efficiency you desire and the thermostatic control you need in one factory assembled product that is installed in the fuel tank.

FEATURES

- Diesel & BioDiesel Compatible
- Heats fuel as it is drawn from the tank to the engine with the remaining heat dispersed inside the tank.
- Shut-Off Thermostat
  On 78°F (25°C) Off 95°F (35°C)
- 304 Stainless Steel Construction
- 1/2" NPT Extension Fitting Included
- Installs in a Standard SAE Fuel Sending Gauge Opening
- Fuel Tank Adapter Kit Required for Non SAE Openings (Page 146)

TYPE OF HEATING

- Warm Coolant

Part No.	Tube Length	Tank Depth	Coolant Port	Fuel Port
SHFT-2512-10-12	9" / 229 mm	10-12" / 254-305 mm	1/2" NPT	1/2" NPT
SHFT-2512-12-14	11" / 280 mm	12-14" / 305-356 mm	1/2" NPT	1/2" NPT
SHFT-2512-13-15	12" / 305 mm	13-15" / 330-381 mm	1/2" NPT	1/2" NPT
SHFT-2512-14-16	13" / 330 mm	14-16" / 356-406 mm	1/2" NPT	1/2" NPT
SHFT-2512-17-19	16" / 406 mm	17-19" / 432-483 mm	1/2" NPT	1/2" NPT
SHFT-2512-20-22	19" / 483 mm	20-22" / 508-559 mm	1/2" NPT	1/2" NPT
SHFT-2512-22-24	21" / 533 mm	22-24" / 559-610 mm	1/2" NPT	1/2" NPT
SHFT-2512-24-26	23" / 584 mm	24-26" / 610-660 mm	1/2" NPT	1/2" NPT
SHFT-2512-26-28	25" / 635 mm	26-28" / 610-711 mm	1/2" NPT	1/2" NPT
SHFT-2512-27-29	26" / 660 mm	27-29" / 686-737 mm	1/2" NPT	1/2" NPT

CAUTION: THE HOT FOX WITH SHUT-OFF THERMOSTAT REQUIRES IT'S OWN COOLANT LOOP—DO NOT PLUMB IN SERIES WITH ANY OTHER COOLANT DEPENDENT DEVICES

WARNING: Tank reinforcement MUST be used to provide additional structural support to the fluid warmer to avoid tank cracking, leading to fluid leakage. See Page 146 for tank adapter kits.

HOTFOX SHUT-OFF THERMOSTAT & STANDPIPE

Warms fuel as it is drawn from the tank for the engine and auxiliary heater with the remaining heat dispersed inside the tank.

FEATURES

- Diesel & BioDiesel Compatible
- Shut-Off Thermostat Options
  On 78°F (25°C) - Off 95°F (35°C)
  On 104°F (40°C) - Off 125°F (52°C)
- 304 Stainless Steel Construction
- 1/2" NPT Extension Fitting Included
- Installs in a standard SAE Fuel Sending Guage Opening
- Fuel Tank Adapter Kit Required for Non SAE Openings (Page 146)

TYPE OF HEATING

- Warm Coolant

Part Number	Tube Length	Tank Depth	Coolant Port	Fuel Port	Aux Fuel Port	Aux Fuel Tube I.D.
Shut-off Thermostat On 78°F (25°C) & Off 95°F (35°C)						
SHFTW-2512-20-22-4MM	19" / 483mm	20-22" / 508-559mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
SHFTW-2512-24-26-4MM	23" / 584mm	24-26" / 610-660mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
SHFTW-2512-27-29-4MM	26" / 660mm	27-29" / 686-737mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
Shut-off Thermostat On 104°F (40°C) & Off 125°F (52°C)						
SHFTW-2512-27-29-104-125-4MM	26" / 660mm	27-29" / 686-737mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm

CAUTION: THE HOT FOX WITH SHUT-OFF THERMOSTAT REQUIRES IT'S OWN COOLANT LOOP—DO NOT PLUMB IN SERIES WITH ANY OTHER COOLANT DEPENDENT DEVICES

WARNING: Tank reinforcement MUST be used to provide additional structural support to the fluid warmer to avoid tank cracking, leading to fluid leakage. See Page 146 for tank adapter kits.

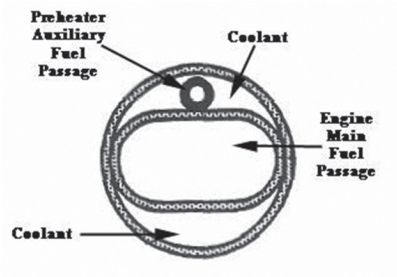
IN-TANK FUEL & FLUID WARMERS

HOTFOX WITH AUXILIARY STANDPIPE

Warms fuel for the main supply and an auxiliary fuel supply. Operators can now easily supply diesel fired coolant heaters, diesel fired cab heaters, and other auxiliary fuel requirements, as well as the main engine fuel supply, all in one package.

FEATURES

- Diesel & BioDiesel Compatible
- Heats fuel as it is drawn from the tank to the engine and auxiliary fuel requirements
- 304 Stainless Steel Construction
- Low Profile Mount 2" (51mm) – Between Fuel Tank & Cab
- Includes 2" Extension Fitting
- Installs in a Standard SAE Fuel Sending Gauge Opening
- Fuel Tank Adapter Kit Required for Non SAE Openings (Page 146)



TYPE OF HEATING

- Warm Coolant

Part Number	Tank Depth	Coolant Port Size	Main Fuel Port Size	Aux Fuel Port Size	Aux Fuel Tube I.D.
TWHF 10-12 2mm	10-12" / 254-305mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 12-14 2mm	12-14" / 305-356mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 13-15 2mm	13-15" / 330-381mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 14-16 2mm	14-16" / 356-406mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 17-19 2mm	17-19" / 432-483mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 20-22 2mm	20-22" / 508-559mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 22-24 2mm	22-24" / 559-610mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 24-26 2mm	24-26" / 610-660mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 26-28 2mm	26-28" / 660-711mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 27-29 2mm	27-29" / 686-737mm	1/2" NPT	1/2" NPT	1/8" NPT	2mm
TWHF 10-12 4mm	10-12" / 254-305mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 12-14 4mm	12-14" / 305-356mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 13-15 4mm	13-15" / 254-381mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 14-16 4mm	14-16" / 356-406mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 17-19 4mm	17-19" / 432-483mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 20-22 4mm	20-22" / 508-559mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 22-24 4mm	22-24" / 559-610mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 24-26 4mm	24-26" / 610-660mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 26-28 4mm	26-28" / 660-711mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm
TWHF 27-29 4mm	27-29" / 686-737mm	1/2" NPT	1/2" NPT	1/8" NPT	4mm

WARNING: Tank reinforcement MUST be used to provide additional structural support to the fluid warmer to avoid tank cracking, leading to fluid leakage. See Page 146 for tank adapter kits.

IN-TANK FUEL & FLUID WARMERS

HOT FOX

Coolant passages inside the tube surround the fuel standpipe to provide heat rise. The internal fuel line features an exclusive spiral design to maximize heat exchange between warm coolant and cold fuel.

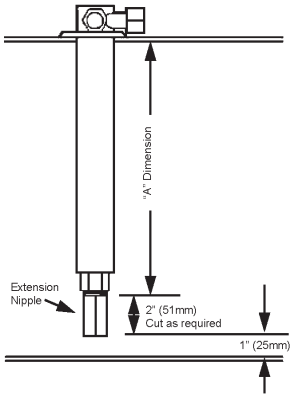
FEATURES

- Diesel & BioDiesel Compatible
- Heats fuel as it is drawn from the tank to the engine
- 304 Stainless Steel Construction
- Lowest Profile Mount 1-1/3" (34mm) – Between Fuel Tank & Cab
- 2" Extension Fitting Included
- Installs in a Standard SAE Fuel Sending Gauge Opening
- Fuel Tank Adapter Kit Required for Non SAE Openings (Page 146)

TYPE OF HEATING

- Warm Coolant

Part Number	Tank Depth/Diameter	Tube Length
HFG 08-10	08-10" / 203-245mm	7" / 178mm
HFG 10-12	10-12" / 245-305mm	9" / 229mm
HFG 12-14	12-14" / 305-356mm	11" / 279mm
HFG 13-15	13-15" / 330-381mm	12" / 305mm
HFG 14-16	14-16" / 356-406mm	13" / 330mm
HFG 17-19	17-19" / 432-483mm	16" / 406mm
HFG 20-22	20-22" / 508-559mm	19" / 483mm
HFG 22-24	22-24" / 559-610mm	21" / 533mm
HFG 24-26	24-26" / 610-660mm	23" / 584mm
HFG 26-28	26-28" / 660-711mm	25" / 635mm
HFG 27-29	27-29" / 686-737mm	26" / 660mm



WARNING: Tank reinforcement MUST be used to provide additional structural support to the fluid warmer to avoid tank cracking, leading to fluid leakage. See Page 146 for tank adapter kits.

HOTFOX HEAT RISE DATA

Coolant Temperature between 192°F / 89°C and 201°F / 94°C—Coolant flow at 5GPM/19LM

13" - 15"			20" - 22"			27" - 29"		
Fuel Flow GPM/LM	Temp In F/C	Temp Out F/C	Fuel Flow GPM/LM	Temp In F/C	Temp Out F/C	Fuel Flow GPM/LM	Temp In F/C	Temp Out F/C
0.17/0.6	+1.7/-17	69.5/21	0.19/0.7	-3.7/-20	84.3/29	0.21/0.8	0.0/-18	81.7/28
0.50/1.9	+2.6/-16	43.2/6	0.51/1.9	-3.7/-20	51.6/11	0.48/2.2	+1.8/-18	71.6/22
1.53/5.8	-0.7/-18	23.9/-5	1.44/5.5	-3.8/-20	34.2/1	1.57/6.0	2.2/-17	45.7/8
0.16/0.6	-20.9/-29	60.9/16	0.20/0.8	-19.2/-28	67.8/20	0.24/1.1	-22.0/-30	66.2/19
0.50/1.9	-20.4/-29	19.2/-7	0.56/2.5	-19.9/-29	34.2/1	0.49/1.9	-21.1/-30	55.5/13
1.50/5.7	-20.3/-29	5.4/-15	1.59/6.0	-20.5/-29	16.8/-8	1.51/6.9	-20.1/-29	26.1/-3
0.22/0.8	-34.7/-37	37.8/3	0.16/0.6	-36.1/-38	78.9/26	0.17/0.6	-31.8/-35	67.2/20
0.52/1.9	-34.8/-37	9.5/-13	0.50/1.9	-36.0/-38	18.6/-7	0.54/2.0	-32.9/-36	37.2/3
1.44/5.5	-34.8/-37	-7.5/-22	1.48/5.6	-35.9/-38	-1.4/-19	1.60/6.0	-33.4/-36	10.8/-12

IN-TANK FUEL & FLUID WARMERS

HOTFOX INDUSTRIAL

FEATURES

- Diesel & BioDiesel Compatible
- 304 Stainless Steel Construction
- Optional Fuel Tank Adapters Available (Page 146)

APPLICATIONS

- Industrial

TYPE OF HEATING

- Warm Coolant

OPTIONS AVAILABLE

- 1" NPT Port for Regulating T-Stat (Page 154)

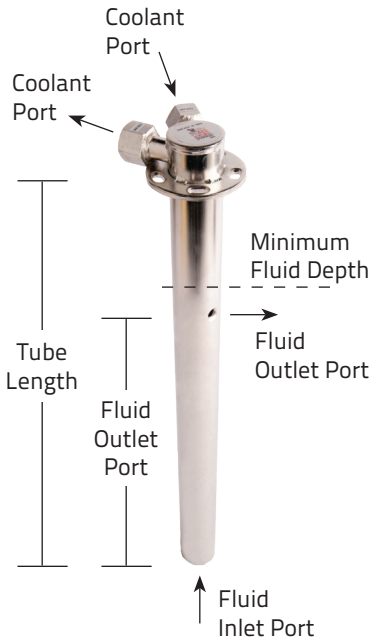
Part Number	Mounting Thread	Insertion Depth	Extension Tube Included - 24"	Coolant Port - Female	Fuel Port - Female	Aux Fuel Port - Female	Aux Fuel Tube I.D.
NPT							
TWHF-2524-16-32	2" NPT	16-32"	Y	1/2" NPT	1" NPT	1/8" NPT	4mm
TWHF-2524-24-48	2" NPT	24-48"	Y	1/2" NPT	1" NPT	1/8" NPT	4mm
TWHF-2524-32-56	2" NPT	32-56"	Y	1/2" NPT	1" NPT	1/8" NPT	4mm
TWHF-2524-56	2" NPT	56"	-	1/2" NPT	1" NPT	1/8" NPT	4mm
STOR							
TWHF-2524-30 STOR	-32 STOR	30"	-	1/2" NPT	1" NPT	1/8" NPT	4mm
TWHF-2524-56 STOR	-32 STOR	56"	-	1/2" NPT	1" NPT	1/8" NPT	4mm

See page 152 for 2" NPT adapters

IN-TANK FUEL & FLUID WARMERS

HOT FOX FOR HYDRAULIC FLUID

Used on applications which require maximum heat transfer in a concentrated area. Install multiple fluid heaters for extreme cold weather applications. Hydraulic fluid circulates from the standpipe through the vent hole. Fluid will not circulate if levels fall below the vent opening.



FEATURES

- Diesel & Hydraulic Fluid Compatible
- Heats and circulates the fuel or fluid inside the tank
- 304 Stainless Steel Construction
- Installs in a Standard SAE Fuel Sending Gauge Opening
- Fuel Tank Adapter Kit Required for Non SAE Openings (Page 146)

TYPE OF HEATING

- Warm Coolant

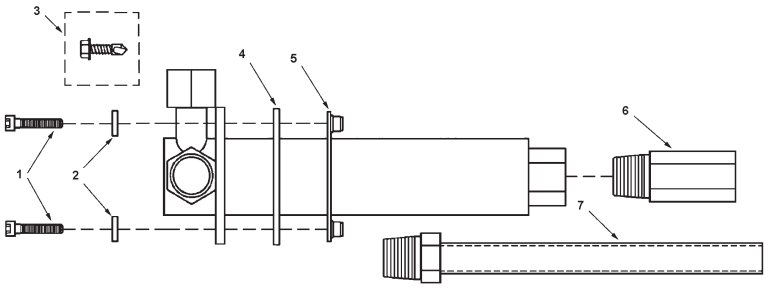
Part Number	Tube Length	Fluid Outlet Port	Maximum Tank Capacity (usg/L)
SHH-1844-09	8-1/4" (210 mm)	3.75" (9.5 cm)	8g / 30L
SHH-1844-11	10-1/4" (260 mm)	5.75" (14.6 cm)	10g / 38L
SHH-1844-12	11-1/4" (286 mm)	6.75" (17 cm)	12g / 45L
SHH-1844-13	12-1/4" (311 mm)	7.75" (19.7 cm)	14g / 53L
SHH-1844-16	15-1/4" (387 mm)	10.75" (27 cm)	17g / 64L
SHH-1844-19	18-1/4" (464 mm)	13.68" (35 cm)	20g / 76L
SHH-1844-21	20-1/4" (514 mm)	15.18" (38.6 cm)	22g / 83L
SHH-1844-23	22-1/4" (565 mm)	16.68" (42 cm)	25g / 95L
SHH-1844-25	24-1/4" (616 mm)	18.18" (46 cm)	28g / 106L
SHH-1844-26	25-1/4" (641 mm)	18.93" (48 cm)	32g / 121L

WARNING: Tank reinforcement MUST be used to provide additional structural support to the fluid warmer to avoid tank cracking, leading to fluid leakage. See Page 146 for tank adapter kits.

HOT FOX SERVICE PARTS

Item	Qty	Description	Part #
1	5	#10-32 UNF x 1.0 Cap Screw	A-857
2	5	Stainless Steel Washer	A-861
3	2	Self Drill / Tap Screw	A-608
4	1	HOT FOX™ Fuel Warmer Gasket	A-841
5	1	Back Up Plate / Template	A-834
6	1	1/2" NPT X 2.0 (51mm) Extension Nipple	A-858
7		HOT FOX™ Fuel heater Extension Nipple—1/2" NPT X 21" (533mm) Long	SP-1950
8		HOT FOX™ Fuel heater Hardware Kit (Includes items 1-6)	KT-834

Does NOT fit Industrial HOTFOX models



IN-TANK FUEL & FLUID WARMERS

ArcticFox®

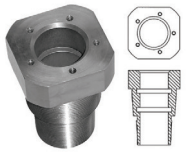
HOT FOX TANK ADAPTER KITS

WARNING: Failure to use recommended reinforcement kits or providing additional structural support to heater may cause tank to crack, leading to fuel leakage.

TANK REINFORCEMENT ADAPTERS

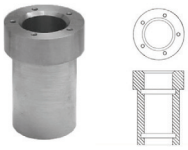
Installation:

- Extreme Vibration
- Horizontal Installation
- Additional Structural Support



THREADED ADAPTER
Fits 1-1/2" & 2" NPT Couplings

A-1721	**A-1721F**
-40° F/C	-90°F (-67°C)
Parts Included	**Parts Included**
(1) A-1792 Gasket	(1) A-1792 Gasket
(2) A-1726 O-Ring	(2) A-2758 O-Ring



WELD-IN ADAPTER
For Fuel or Hydraulic Tanks

A-2060 (Steel) **A-2060-A (Alum.)**	**A-2060F** **A-2060-AF**
-40° F/C	-90°F (-67°C)
Parts Included	**Parts Included**
(1) A-1792 Gasket	(1) A-1792 Gasket
(2) A-1726 O-Ring	

Installation:

- Non-Reinforced Opening
- Manufactured Tanks
- Additional Structural Support

FLAT TANKS

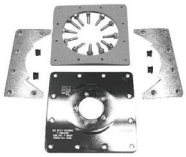
KT-826F

Applications:
Adapts standard Arctic Fox fuel heater mount to Hot Fox™ mount.

Kit Components

- Adapter Plate 6"/152mm Square
- (1) A-826
- Backing Plates (2) A-2025
- Clips (4) A-649
- Gasket (1)—A-611
- Mounting Bolts (12) – A-610
- ▪ Template (1)—A-708

ROUND TANKS



KT-827C for 22"-29"/559-737mm Dia.

KT-831CS for 14"-21"/356-533mm Dia.

Applications:
Adapts standard Arctic Fox fuel heater mount to Hot Fox™ mount.

Kit Components

- Adapter Plate 6"/152mm Square (1)
- A-827 for KT-827C
- A-831 for KT-831CS
- Backing Plates (2) A-1795
- Clips (4) A-649
- Gasket (1)—A-611
- Mounting Bolts (12) – A-610
- Template (1)—A-708

SPACER KITS

Installation:

- Raise Heater Flange
- Additional Structural Support

KT-875

Purpose: To raise HOT FOX™ fuel heater flange 1/2" (13mm) above tank.

Parts Included:

- (5) A-863 #10-32 UNF socket head bolts
- (1) A-841 Gasket
- (1) A-875 1/2" (13mm) Spacer

KT-877

Purpose: To raise HOT FOX™ fuel heater flange 1" (25mm) above tank. For Kenworth recessed gauge opening & misc. others

Parts Included:

- (5) A-869 #10-32 UNF socket head bolts
- (1) A-841 Gasket
- (1) A-877 1" (25mm) Spacer

HOT FOX FUEL & FLUID HEATER ACCESSORIES

BLANK PLATE Part No. A-870

Application

- Cover Standard USA Fuel Tank Opening

TAPPED PLATE Part No. A-4607

Application

- Auxiliary Standpipe Installation into a Standard USA Fuel Tank Opening
- Center Tap for 1/2" NPT

120MM FLANGE KT-829K

Application

- Adapts Kenworth OEM 104.5mm B.C. Flange to Hot Fox™ mount

Kit Components

- (1) Adapter Plate – A-829
- (1) Gasket – A-811
- (10) Mounting Bolts – A-856

IN-TANK FUEL & FLUID WARMERS

THE ORIGINAL ARCTIC FOX

Used on applications which require maximum heat transfer in a concentrated area. Install multiple fluid heaters for extreme cold weather applications.

FEATURES

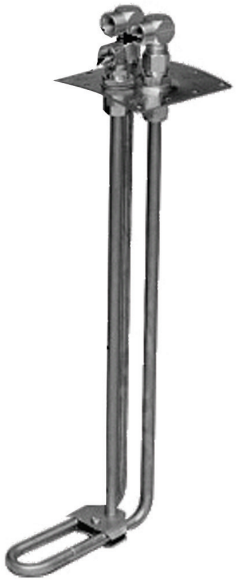
- Diesel, BioDiesel up to 5%, Hydraulic, Oil & Water Compatible
- Heats the fuel or fluid inside the tank
- 304 Stainless Steel Loop
- 2/3/4" (70mm) Above Tank Clearance Required

TYPE OF HEATING

- Warm Coolant

OPTIONS AVAILBLE

- Flat or Curved Tank Mounting Flange
- Fuel Standpipe
- Custom Built Fluid Heaters – Quoted by Request Under 14" or Over 29" L (356mm / 737mm L)



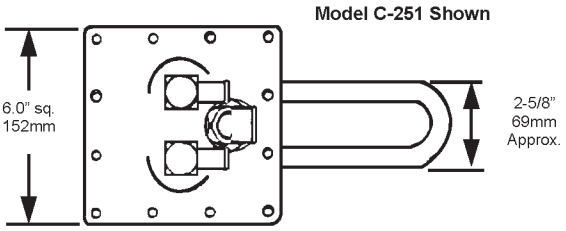
Fuel Standpipe

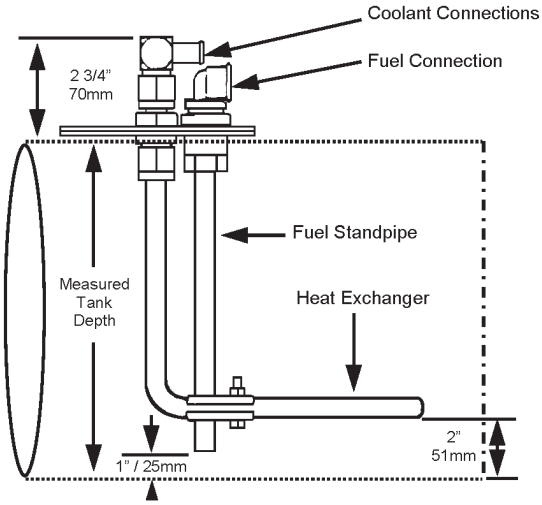
No Fuel Standpipe

Part No.	Tank Depth	Coolant Hose	Fuel Standpipe
C-201	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	No
C-201P	Round 22" through 29" (559mm through 737mm)	1/2" Female Pipe Thread	No
C-251	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	Yes
C-251P	Round 22" through 29" (559mm through 737mm)	1/2" Female Pipe Thread	Yes
CS-201	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	No
CS-201P	Round 14" through 21" (356mm through 533mm)	1/2" Female Pipe Thread	No
CS-251	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	Yes
CS-251P	Round 14" through 21" (356mm through 533mm)	1/2" Female Pipe Thread	Yes
F-203	Flat 14" through 29" (356mm through 737mm)	5/8" Hose Barb	No
F-203P	Flat 14" through 29" (356mm through 737mm)	1/2" Female Pipe Thread	No
F-253	Flat 14" through 29" (356mm through 737mm)	5/8" Hose Barb	Yes
F-253P	Flat 14" through 29" (356mm through 737mm)	1/2" Female Pipe Thread	Yes

Note: Coolant loop and standpipe are cut to desired length

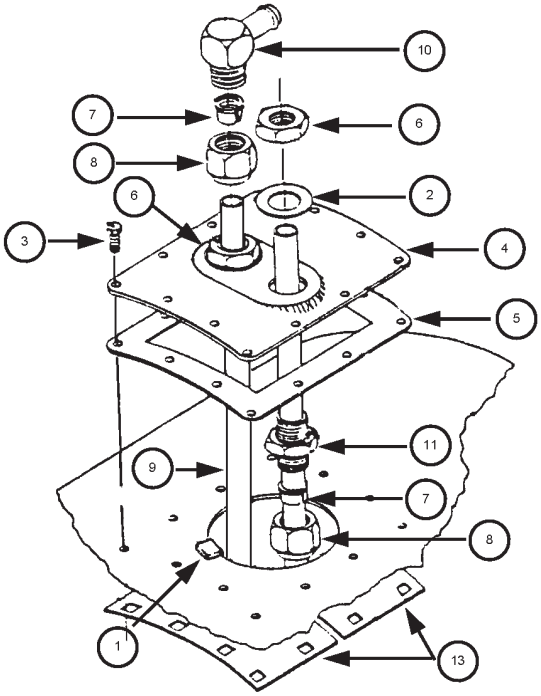
PRODUCT DIMENSIONS





THE ORIGINAL ARCTIC FOX

SERVICE PARTS



Item No.	Qty.	Description	Part No.
1	4	Retaining Clip – (Included in Installation Kit)	A-649
2	2	Copper Washer	A-616
3	12	Mounting Bolt – (Included in Installation Kit)	A-610
(a) 4	1	Curved 2-Hole Plate – See Option 4 Below for Flat Plate	A-415-2
5	1	Gasket – (Included in Installation Kit)	A-611
6	2	Locking Nut	A-628
7	4	Split Ring Ferrule	A-621
8	4	Compression Nut	A-639
9	1	Heat Exchanger Tube 28" / 711mm	A-600
(b) 10	2	5/8" Tube Fitting Elbow to 5/8" / 16mm Hose Barb (Includes 7 & 8) – See Option 10 Below for 1/2" NPT	A-613
11	2	Bushing (Includes 6, 7, & 8)	A-612
12	8	O-Ring Kit (Package Contains 4 Each White & Black O-Rings) – NOT SHOWN	A-617
(c) 13	2	Curved Back-Up Plate – See Option 13 Below for Flat Back-Up Plate	A-1795
(a) Option 4	1	Flat 2-Hole Plate	A-414-2
(b) Option 10	2	5/8" Tube Fitting Elbow to 1/2" Female NPT	A-619
(c) Option 13	2	Flat Back-Up Plate	A-2025
Misc.	N/A	Curved Cover Up Kit – 22" Through 29" / 559mm Through 737mm Tanks	KT-1909
Misc.	N/A	Curved Cover Plate – 22" Through 29" / 559mm Through 737mm Tanks	A-415-0
Misc.	N/A	Flat Cover Up Kit	KT-1911
Misc.	N/A	Flat Cover Up Plate	A-414-0
Misc.	N/A	Curved Cover Up Kit – Up To 22" / 559mm Tanks	KT-1910
Misc.	N/A	Curved Cover Up Plate – Up To 22" / 559mm Tanks	A-541-0

IN-TANK FUEL & FLUID WARMERS

THE ORIGINAL ARCTIC FOX WITH BY-PASS THERMOSTAT

Fuel is warmed to the optimum operating temperature in cold weather with the proven Arctic Fox® fuel heater in-tank design. A fully mechanical thermostat integrated into the unit by-passes the fuel warming loop when fuel temperature reaches optimum operating temperature.

FEATURES

- Diesel, BioDiesel up to 5%, Hydraulic, Oil & Water Compatible
- Heats the fuel or fluid inside the tank
- Thermostatically Controlled – Maintains fuel temperature at 80°F (27°C)
- 304 Stainless Steel Loop
- 2/3/4" (70mm) Above Tank Clearance Required

TYPE OF HEATING

- Warm Coolant

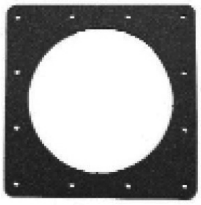
OPTIONS AVAILABLE

- Flat or Curved Tank Mounting Flange
- Fuel Standpipe
- Can be Custom Designed

Part	Tank Depth	Coolant Connection	Fuel Standpipe
C-406-XX	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	No
C-407-XX	Round 22" through 29" (559mm through 737mm)	3/4" Hose Barb	No
C-456-XX	Round 22" through 29" (559mm through 737mm)	5/8" Hose Barb	Yes
C-457-XX	Round 22" through 29" (559mm through 737mm)	3/4" Hose Barb	Yes
CS-406-XX	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	No
CS-407-XX	Round 14" through 21" (356mm through 533mm)	3/4" Hose Barb	No
CS-456-XX	Round 14" through 21" (356mm through 533mm)	5/8" Hose Barb	Yes
CS-457-XX	Round 14" through 21" (356mm through 533mm)	3/4" Hose Barb	Yes
F-406-XX	Flat 14" through 29" / 356 through 737mm	5/8" Hose Barb	No
F-407-XX	Flat 14" through 29" / 356 through 737mm	3/4" Hose Barb	No
F-456-XX	Flat 14" through 29" / 356 through 737mm	5/8" Hose Barb	Yes
F-457-XX	Flat 14" through 29" / 356 through 737mm	3/4" Hose Barb	Yes

ORDERING INFORMATION: ALL heaters are factory pre-assembled. Order heaters based on tank depth.
Example C-406-XX—if tank depth is 27" / 686mm, order C-406-27.
NOTE: Warranty is void if disassembled

SERVICE PARTS

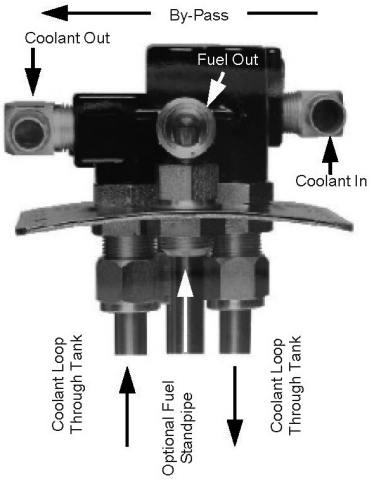


A-611 Gasket

A-649 Tank Clip

A-610 Mounting Bolt

Back Up Plate
A-1795 "C" Models
A-2025 "F" Models
A-1795 "CS" Models



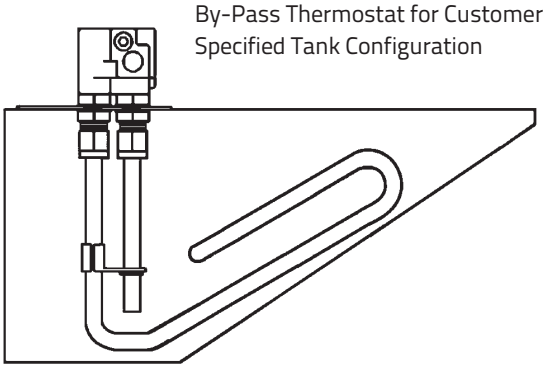
IN-TANK FUEL & FLUID WARMERS

THE ORIGINAL ARCTIC FOX CUSTOM DESIGNED

CUSTOM HEAT EXCHANGERS

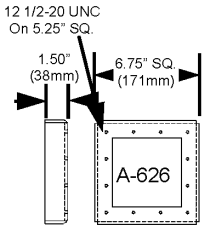
1. Provide the following information to receive a quote
   a. Exact dimensions and tank clearance (I.e. sketch, blueprint, IGES CAD file? Tank and system capacity)
   b. Type of vehicle or machine
   c. Type of fluid to be heated
   d. Maximum allowable temperature of fluid to be heated. Is thermostat required?
   e. Total coolant capacity
   f. Does equipment have a fuel fired coolant pre-heater? What is the BTU size capacity?
   g. Does the application only require maintaining existing reservoir heat or will system be "cold soaked" and fluid temperature rise be required? Please note original fluid temperature and desired temperature after one hour of heating.
   h. Is tank pressurized or used on aerial man lift?
2. Fax or call Arctic Fox with above information
   Phone: (800) 654-5382 or (763) 972-2758
   Fax: (763) 972-2873.
3. Arctic Fox will design and quote for this specific reservoir.
4. A design print and customer authorization will be sent to customer. If approved, customer will indicate so by returning signed customer authorization form to Arctic Fox. After receipt of signed authorization, orders for the custom heat exchanger will be filled. Allow 4 to 6 weeks after receipt of signed authorization.

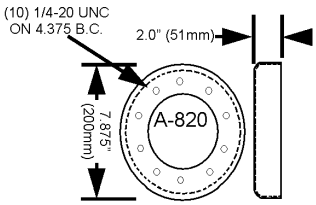
Example of Custom Heater with By-Pass Thermostat for Customer Specified Tank Configuration

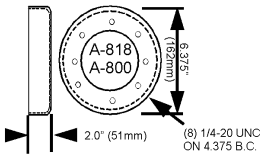


FUEL & HYDRAULIC TANK WELD-ON ADAPTERS

Part No.	Material	Cover Plate	Gasket	Mounting Bolt
A-626	Steel	A-414-0	A-611	A-610
A-800	Aluminum	A-802	A-801	A-610







MINI HEAT EXCHANGER

Utilizes engine coolant to warm engine oil pans and small hydraulic reservoirs.

FEATURES

- Hydraulic, Oil & Water Compatible
- Heats fluid inside the tank
- Small Tank Applications 1-5 Gal. (4-19 L)
- 304 Stainless Steel Construction
- Install multiple units for larger tanks or faster heat rise
- Install horizontally at bottom of tank or vertically

TYPE OF HEATING

- Warm Coolant

Part Number	Adapter Type	Tube Diameter	DIM "A"	DIM "B"	Surface Area Nominal	BTU/Hr Nominal (1)
H-2697-6SS	3/4" NPT	7/8" / 22mm	6" / 152mm	7" / 178mm	16.49 in²	329
H-2697-8SS	3/4" NPT	7/8" / 22mm	8" / 203mm	9" / 229mm	21.99 in²	439
H-2697-10SS	3/4" NPT	7/8" / 22mm	10" / 254mm	11" / 279mm	27.48in²	549

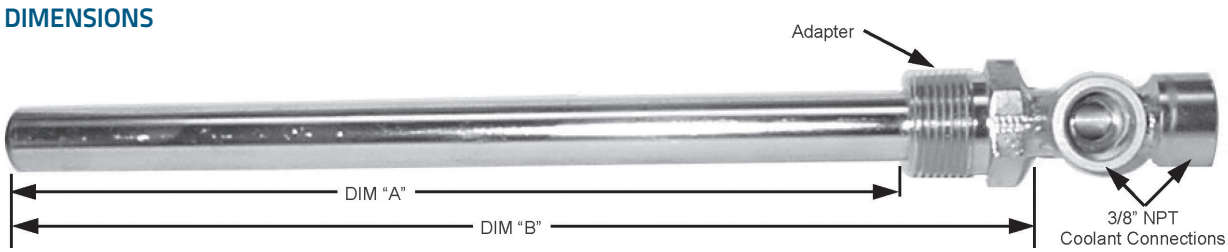
(1) Nominal BTU/hr based upon 180°F / 82°C Coolant flowing at 5 US Gallons / 19 Liters per minute.

Water—beginning temperature at +35°F / +2°C

Note: Actual temperature rise will be affected by factors such as coolant temperatures and flow rate, specific heat capacity of fluids and air movement around reservoir.

****Contact Arctic Fox Application Engineering for estimated temperature rise for your specific application.**

DIMENSIONS



IN-TANK FUEL & FLUID WARMERS

HYDRA LINER

Utilizes engine coolant to warm fluid reservoirs.

FEATURES

- Hydraulic, Diesel, Oil & Water Compatible
- Heats fluid inside the tank
- 304 Stainless Steel Construction
- Threads into standard 2" NPT female pipe thread or standard 2" Straight Thread-O-Ring (STOR) coupling
- Install multiple units for larger tanks or faster heat rise
- Install horizontally at bottom of tank
- STOR Models include mounting flange TWF-32 weld-on adapter

TYPE OF HEATING

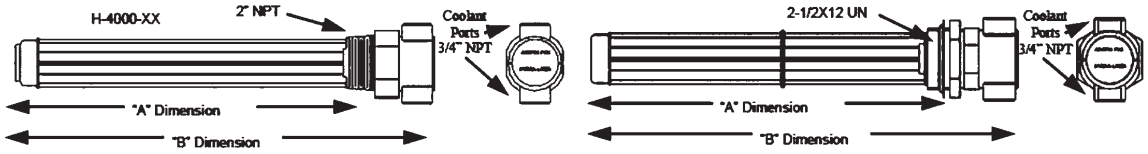
- Warm Coolant

Part Number	"A" Tube Immersion Length	"B" Total Length	Surface Area Nominal	BTU/hr Nominal (1)	Typical Application (ambient air temp) to -20°F / -29°C (2)**	Typical Application (ambient air temp) to -40°F / -40°C (2)**
H-4000-8 H-4000-8-STOR	7 inches 178 mm	10 inches 254 mm	105 in^2 8 dm^2	Water 4,200 Oil 2,100	Up to 20 US gallons 76 Liters	Up to 8 US gallons 30 Liters
H-4000-12 H-4000-12-STOR	11 inches 280 mm	14 inches 356 mm	180 in^2 12 dm^2	Water 7,200 Oil 3,600	Up to 35 US gallons 133 Liters	Up to 14 US gallons 53 Liters
H-4000-16 H-4000-16-STOR	15 inches 381 mm	18 inches 457 mm	250 in^2 16 dm^2	Water 10,000 Oil 5,000	Up to 50 US gallons 190 Liters	Up to 19 US gallons 72 Liters
H-4000-20 H-4000-20-STOR	19 inches 483 mm	22 inches 559 mm	315 in^2 20 dm^2	Water 13,000 Oil 6,500	Up to 63 US gallons 239 Liters	Up to 25 US gallons 90 Liters
H-4000-24 H-4000-24-STOR	23 inches 584 mm	26 inches 660 mm	385 in^2 24 dm^2	Water 16,000 Oil 8,000	Up to 77 US gallons 292 Liters	Up to 30 US gallons 113 Liters

(1) Nominal BTU/hr based upon 180°F / 82°C Coolant flowing at 5 US Gallons / 19 Liters per minute.
Water—beginning temperature at +35°F / +2°C
Oil—ISO 32 Hydraulic Oil beginning temperature -20°F / 29°C

(2) Actual temperature rise will be affected by factors such as coolant temperatures and flow rate, specific heat capacity of fluids and air movement around reservoir.
Contact Arctic Fox Application Engineering for estimated temperature rise for your specific application.

PRODUCT DIMENSIONS



OPTIONAL WELD-ON TANK ADAPTERS (HORIZONTAL INSTALLATIONS)

Part Number	Description	Application
A-3228HD	Steel—Schedule 80 2" NPT Female Coupling	Preferred for most installations on steel tanks
A-3228AHD	Aluminum T-6061—Schedule 80 2" NPT Female Coupling	Preferred for most installations of aluminum tanks
A-3228HD-STOR	Steel—Combination 32 STOR & 2" NPT	May be used to install either style of Hydra Liner
V6216	Steel—Half Coupling—32 STOR	Used when external tank clearance is limited
A-5878SSHD	Stainless Steel—Half Coupling—32 STOR	Used when external tank clearance is limited
IS43THCK	Stainless Steel—2" NPT Half Coupling 300#	Preferred for most installations on Stainless Steel Tanks
TWF-32	Steel—Flange 32 STOR	Used when external clearance is limited
TWF-32N	Steel—Flange 2" NPT	Used when external clearance is limited

IN-TANK FUEL & FLUID WARMERS

SINGLE & DUAL DRAW STANDPIPES

The Fuel Standpipe transfers diesel fuel from the fuel tank to the diesel-fired heater.

- Single Draw – Can serve as either a suction standpipe or as a return fuel provision
- Dual Draw – Includes a suction standpipe and a return fuel provision

SINGLE DRAW STANDPIPE KIT

Part number SP-1069

- Non-heated standpipe
- Fits tanks up to 29" (737mm), cut to required length by installer
- Bolts to standard SAE fuel gauge sending unit
- Kit includes template and hardware to easily make additional tank opening when required
- Custom brackets available, contact customerservice@arctic-fox.com for quote

SINGLE DRAW STANDPIPE SERVICE PARTS

Item	Qty.	Description	Part #
1	5	#10-32 Allen head cap screw	A-857
2	5	St. Steel Washer	A-861
3	1	5/8" / 16mm x 1/2" NPT Elbow	A-609
4	2	Self-Drill-Tap Screw	A-608
5	1	Standpipe Fitting	A-622B
6	1	Copper Washer	A-816
7	1	2.75" / 70mm O.D Standpipe Plate	A-1364
8	1	Gasket	A-841
9	1	Backup Plate/Template	A-834
10	1	Inverted Flare Gasket	A-635
11	1	Standpipe 29"/737mm	A-624-29

DUAL DRAW STANDPIPE

- Part is determined by the tank depth & if the tank is curved or flat.
- Specify C-curved tank or F-flat tank when ordering

Part Number	Measured Outside Tank Dimension
SP-1662-13	13"–13-7/8" (330mm–353mm)
SP-1662-14	14"–14-7/8" (356mm–379mm)
SP-1662-15	15"–15-7/8" (381mm–404mm)
SP-1662-16	16"–16-7/8" (406mm–429mm)
SP-1662-17	17"–17-7/8" (432mm–455mm)
SP-1662-18	18"–18-7/8" (457mm–480mm)
SP-1662-19	19"–19-7/8" (483mm–506mm)
SP-1662-20	20"–20-7/8" (508mm–531mm)
SP-1662-21	21"–21-7/8" (533mm–556mm)
SP-1662-22	22"–22-7/8" (559mm–582mm)
SP-1662-23	23"–23-7/8" (584mm–607mm)
SP-1662-24	24"–24-7/8" (610mm–633mm)
SP-1662-25	25"–25-7/8" (635mm–658mm)
SP-1662-26	26"–26-7/8" (660mm–683mm)
SP-1662-27	27"–27-7/8" (686mm–709mm)
SP-1662-28	28"–28-7/8" (711mm–734mm)
SP-1662-29	29"–29-7/8" (737mm–760mm)
SP-1662-30	30"–30-7/8" (762mm–785mm)

SHUT-OFF THERMOSTATS

Control fuel or fluid temperature for fuel and fluid warmers with 1/2" NPT coolant ports. Thermostat will regulate fluid to the device or component connected in series when the fluid reaches the pre-set thermostat temperature.

FEATURES

- Hydraulic, Diesel, Oil & Water
- 1/2" NPT Connector
- Steel Tees

TEE STYLE A-289

(2) 1/2" THREADED FEMALE PORTS

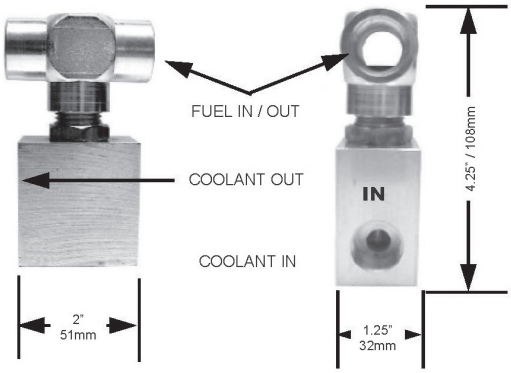
Part No.	Tee Style	Mounting Holes	Bracket	Temp On	Temp Off
S-400-T	A-289	-	-	78°F (25°C)	95°F (35°C)
S-440T	A-289	-	-	104°F (40°C)	125°F (52°C)
S-400-HT	A-289	(2) Opposite Corners	-	78°F (25°C)	95°F (35°C)
S-440HT	A-289	(2) Opposite Corners	-	104°F (40°C)	125°F (52°C)
S-400-BT	A-289	(2) Opposite Corners	Y	78°F (25°C)	95°F (35°C)
S-440BT	A-289	(2) Opposite Corners	Y	104°F (40°C)	125°F (52°C)

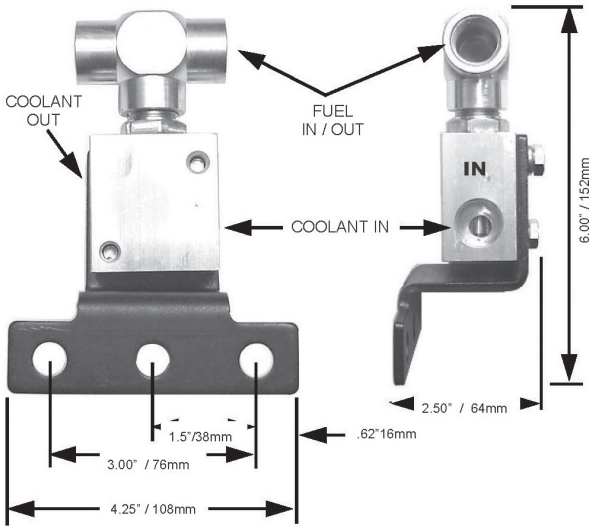
TEE STYLE A-284

(1) 1/2" THREADED FEMALE PORT & (1) 1/2" THREADED MALE PORT

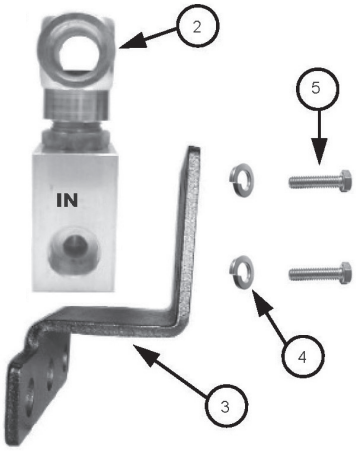
Part No.	Tee Style	Mounting Holes	Bracket	Temp On	Temp Off
S-400ST	A-284	-	-	78°F (25°C)	95°F (35°C)
S-440ST	A-284	-	-	104°F (40°C)	125°F (52°C)

PRODUCT DIMENSIONS

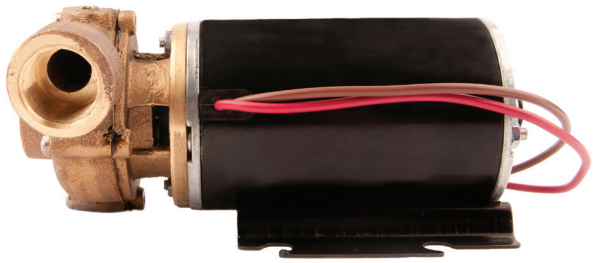




SERVICE PARTS

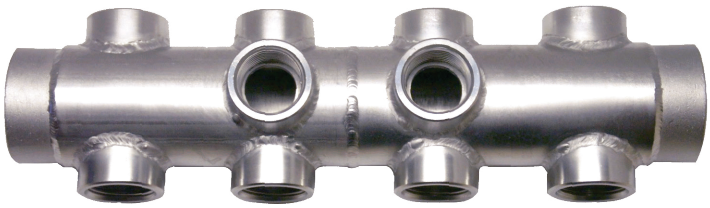


Item No.	Part No.	Description
2	A-289	Tee – (2) Threaded Female Ports 1/2" NPT
2	A-284	Tee – Threaded Female & Male Port 1/2" NPT
2	A-3796	Tee - 1" NPT Port
3	A-315	Mounting Bracket
4	A-317	Split Lock Washer 5/16"
5	A-316	Bolt 5/16" UNC x 1.25" (32mm)



COOLANT CIRCULATION PUMP

COOLANT MANIFOLDS

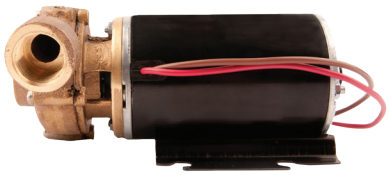


FUEL & COOLANT HOSES

COOLANT WARMING ACCESSORIES

COOLANT CIRCULATION PUMP

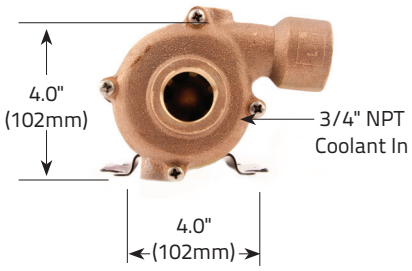
Used to "boost" coolant flow in Arctic Fox® Fuel & Fluid Temperature Management Systems, when multiple heat exchangers are installed or for remote tank installations that require long lengths of plumbing

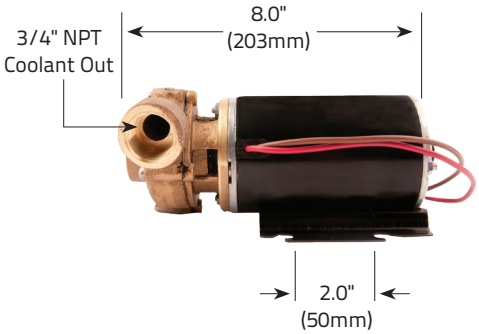


Part Number	Description	Amp Draw	Recommended Temp Range	GPM/LPM	Pressure PSI/Bar
A-1600-12V	12V DC Pump	8.5	to +20˚F / -7˚C	8/30	4/.28
A-1600-24V	24V DC Pump	4.3	to +20˚F / -7˚C	8/30	4/.28
A-1600-115V*	115V AC Pump	1.0	to +20˚F / -7˚C	8/30	4/.28
A-4350-12V	12V DC Pump	10.1	to -40˚F / -40˚C	10/38	8/.55
A-4350-24V	24V DC Pump	5.1	to -40˚F / -40˚C	10/38	8/.55

*Dimensions shown do not pertain to the A-1600-115V

DIMENSIONS



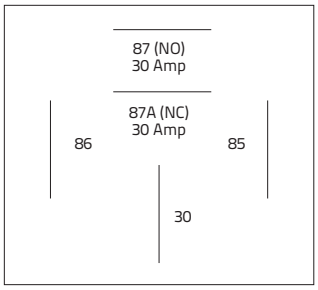


RELAY & BRACKET – DS 12V & 24V

Allows 12 and 24 volt DC pumps to be operated with minimal current draw through a switch or other triggering mechanism.

Part Number	Description
KT-1904	Relay & Connector Bracket for 12V DC System
KT-1941	Relay & Connector Bracket for 24V DC System

Terminal	Connection
30	Battery + for negative ground systems Battery – for negative ground systems
85	Switch or triggering mechanism
86	Ground
87 (NO)	Brown pump wire on negative ground or insulated systems. Black pump wire for positive ground systems
87a (NC)	Normally closed contact—not used



Relay Terminal Connection

COOLANT WARMING ACCESSORIES

COOLANT MANIFOLDS

Used in Arctic Fox® Fuel & Fluid Temperature Management Systems to help distribution of coolant through multiple heat exchangers. May also be used to eliminate the use of multiple wye and tee fittings and to reduce the number of connections.

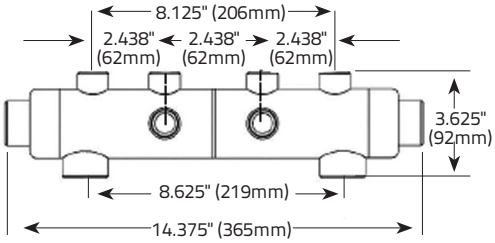
ST-1596 — Dual chamber, typically used on systems with up to a 50,000 BTU coolant preheater.

INPUT CONNECTIONS:

- One 1" NPT inlet
- One 1" NPT outlet
- Three ½" NPT outlets

OUTPUT CONNECTIONS:

- One 1" NPT inlet
- Three ½" NPT inlets
- One 1" NPT outlet



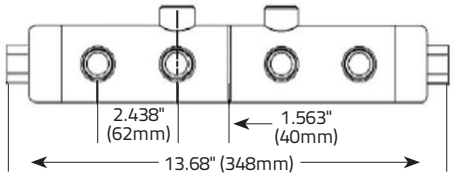
ST-1596SC — Dual chamber, typically used on Scania vehicles.

INPUT CONNECTIONS:

- One ½" NPT inlet
- Three ½" NPT outlets

OUTPUT CONNECTIONS:

- Three ½" NPT inlets
- One ½" NPT outlet



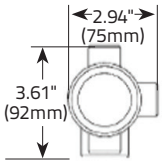
ST-2520 — Dual chamber, typically used on systems with a 80,000-100,000 BTU coolant preheater.

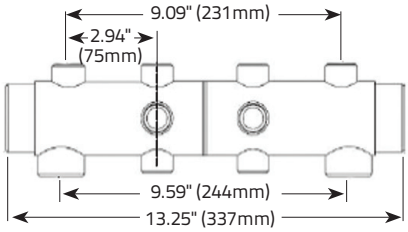
INPUT CONNECTIONS:

- One 1½" NPT inlet
- One 1" NPT outlet
- Four ½" NPT outlets

OUTPUT CONNECTIONS:

- One 1" NPT inlet
- Four ½" NPT inlets
- One 1½" NPT outlet

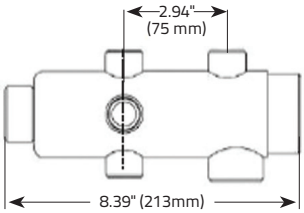


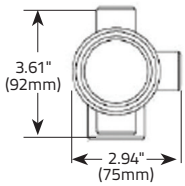


ST-2580 — Single chamber, typically used in place of multiple Tee's.

CONNECTIONS:

- One 1½" NPT
- Two 1" NPT
- Four ½" NPT ports





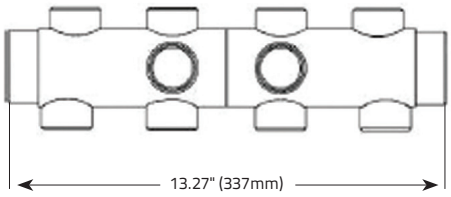
ST-5136 — Dual chamber, typically used on systems with a 80,000-100,000 BTU coolant preheater.

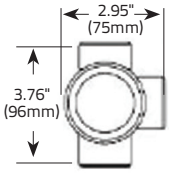
INPUT CONNECTIONS:

- One 1½" NPT inlet
- Five 1" NPT outlets

OUTPUT CONNECTIONS:

- Five 1" NPT inlets
- One 1-1/2" NPT outlet



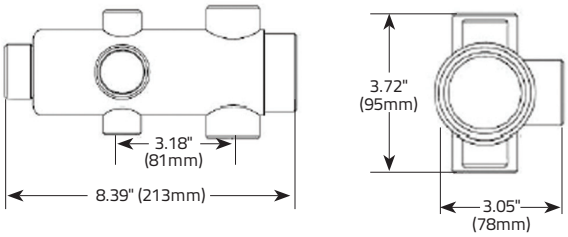


COOLANT MANIFOLDS

ST-5809 — Single chamber, typically used in place of multiple Tee's.

CONNECTIONS:

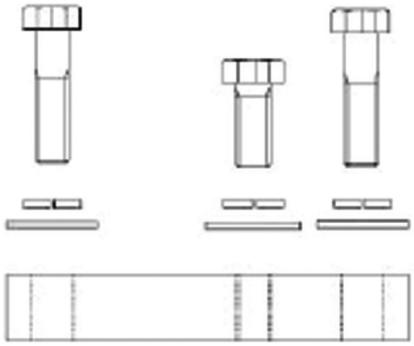
- One 1½" NPT
- Four 1" NPT
- Two ½" NPT ports



KT-5812 — Used to mount ST-5809 manifold to 3500 series Caterpillar eng

KIT CONTENTS:

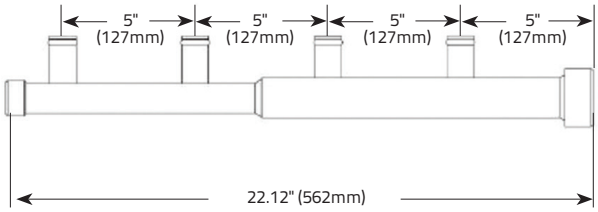
- One Manifold Spacer Plate
- Two M12 x 1.75 x 50 Bolts
- Two ½ x 13 x 2 Bolts
- One ½ x 1.5 Bolt
- Three ½ SAE Flat Washers
- Three ½ SAE Spring Lock Washers
- Two ½ UNC Nuts



A-5562 — Single chamber, vertical mount, typically used when multiple SF-5139 heater exchangers are used in parallel, or as an extension.

CONNECTIONS:

- One 1½" NPT inlet
- Four 1" O.D. Hose barb outlets
- One ¾" NPT outlet

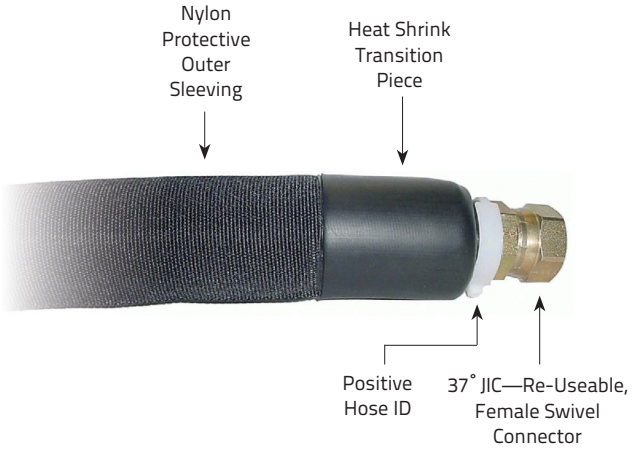


COOLANT WARMING ACCESSORIES

SAE 100R5 HOSE

Synthetic rubber hose with two layers of reinforcement – fiber & steel braids.

- Temperature Range: -40°F (-40°C) to +302°F (+150°C)
- Options include insulation, nylon sleeve, fittings, bulk lengths and pre-assembled



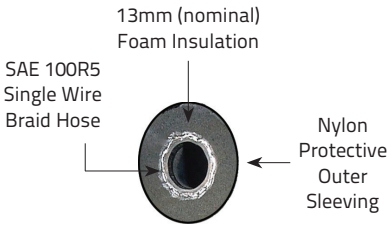
APPLICATIONS

- Petroleum base hydraulic fluids
- Lubricating oils
- Diesel fuels
- Coolant solutions

PRE-ASSEMBLED HOSE – SAE 100R5

Pre-assembled with insulation, nylon sleeve and fittings

- Pre-assembled 50' length with (2) reusable JIC fittings installed (4 additional fittings included)
- Wrapped in seamless insulated foam tubing
- Environmentally protected by a dependable rugged nylon sleeve
- Hose ends are finished with heat shrink tubing for durability
- Additional heat shrink wrap shipped with hose assembly



Part No.	Hose Size	Hose I.D.	Hose Length	Insulated	Nylon Sleeve	Fitting Size
A-10-600-PS	#10	0.92" (23 mm)	50' (50 m)	Yes	Yes	A-1752-10
A-12-600-PS	#12	1.08" (27 mm)	50' (50 m)	Yes	Yes	A-1753-12
A-16-600-PS	#16	1.23" (31 mm)	50' (50 m)	Yes	Yes	A-1753-16
A-20-600-PS	#20	1.50" (38 mm)	50' (50 m)	Yes	Yes	A-1753-20
A-24-600-PS	#24	1.75" (44 mm)	50' (50 m)	Yes	Yes	A-1753-24

NOTE: 50' bulk hose is terminated on each end with reusable straight female JIC connectors. Includes hose identification labels, 4 extra loose fittings, and 4 ft. of heat shrink tube to cover installation of fittings on additional hose ends. Order additional fittings appropriate for the correct size hose to make additional finished hose sections. See the Reusable Swivel Fitting chart on Page 160.

HOSE – SAE 100R5

SAE 100R5 Synthetic rubber hose with two layers of reinforcement – fiber & steel braids.

- Temperature Range: -40°F (-40°C) to +302°F (+150°C)

Part No.	Hose Size	Hose I.D.	Hose Length	Insulated	Nylon Sleeve	Fitting Size
A-1750-4	#4	0.19" (4.8 mm)	Sold by foot	—	—	—
A-1750-10	#6	0.50" (12.7 mm)	Sold by foot	—	—	—
A-1750-12	#10	0.62" (15.7mm)	Sold by foot	—	—	—

SWIVEL FITTINGS

Fits SAE 100R5 hose.

Part No.	Hose Size	Thread Size	Tube Size	Seat
A-1752-10	#10	7/8" - 14	5/8"	Dual (SAE 45° & JIC 37°)
A-1753-12	#12	1-1/16" - 14	3/4"	JIC 37°
A-1753-16	#16	1 5/16" - 12	1"	JIC 37°
A-1753-20	#20	1 5/8" - 12	1-1/4"	JIC 37°
A-1753-24	#24	1 7/8" - 12	1-1/2"	JIC 37°

SAE 20R3 HOSE

Silicone hose with 1-ply nylon fiber reinforcement

- Temperature range is -65°F (-54°C) to +350°F (+177°C)
- Standard Wall Thickness is .140"/.170"
- Bend radius is 5 times the ID of the hose
- Options include insulation, nylon sleeve, and bulk lengths
- Fittings NOT included

APPLICATIONS

- Resistant to coolant additives
- Resists hardening, cracking, cold leaks, aging, and many chemicals
- Ideal for extreme temperature and various pressure ranges where high performance levels are required

PRE-ASSEMBLED HOSE – SAE 20R3

Pre-assembled with insulation and nylon sleeve

- Wrapped in seamless insulated foam tubing
- Environmentally protected by a dependable rugged nylon sleeve
- Hose ends are finished with heat shrink tubing for durability
- Additional heat shrink wrap shipped with hose assembly

Part No.	Hose I.D.	Hose Length	Insulated	Nylon Sleeve
A-525-600-PS	5/8" (16 mm)	50' (50 m)	Yes	Yes
A-530-600-PS	3/4" (19 mm)	50' (50 m)	Yes	Yes
A-3231-600-PS	1" (25 mm)	50' (50 m)	Yes	Yes
A-532	5/8" (16 mm)	Bulk (1)	Yes	Yes
A-534	3/4" (19 mm)	Bulk (1)	Yes	Yes

COOLANT WARMING ACCESSORIES

HOSE – SAE 20R3

SAE 20R3 silicone hose with 1-ply nylon fiber reinforcement

- Temperature range is -65°F (-54°C) to +350°F (+177°C)
- Standard Wall Thickness is .140"/.170"
- Bend radius is 5 times the ID of the hose

Part No.	Hose I.D.	Hose Length	Insulated	Nylon Sleeve
A-525-600-PS	5/8" (16 mm)	Bulk (1)	—	—
A-530-600-PS	3/4" (19 mm)	Bulk (1)	—	—
A-3231-600-PS	1" (25 mm)	Bulk (1)	—	—

HOSE WITH PUSH-TO-LOCK FITTINGS

Synthetic rubber hose with one fiber braid reinforcement and push-to-lock fittings. The barbed fittings seal tightly and securely with quick assembly.

- Temperature range is -40°F (-40°C) to +257°F (+125°C)
- NOT recommended for extreme pulsation applications

APPLICATIONS

- Pneumatic, petroleum base hydraulic fluid
- Lubricating oils
- Coolant solutions

Part No.	Hose I.D.	Hose Length
A-2766	1/4" (6.4 mm)	Sold by foot
A-1660	3/8" (9.5 mm)	Sold by foot

HOSE INSULATION

Closed cell, flexible elastomeric foam insulation

- Slows heat loss
- Prevents condensation or frost formation in below-ambient temperatures
- Temperature range is -297°F (-182°C) to +220°F (+104°C)

Part No.	Hose I.D.	Length
A-1710	1/2" (13 mm)	6' / 2 m
A-1711	5/8" (16 mm)	6' / 2 m
A-1712	3/4" (19 mm)	6' / 2 m
A-706	1-1/8" (32 mm)	6' / 2 m
A-720	1-1/8" (32 mm)	125' Roll or 25' Increments
A-705	1-1/8" (32 mm)	(4) Pieces 6' each / 2 meters w/ tie straps
A-712	1-3/8" (35 mm)	6' / 2 m
A-721	1-3/8" (35 mm)	125' Roll or 25' Increments
A-713	2-1/8" (54 mm)	6' / 2 m
A-1791	2-1/8" (54 mm)	6' / 2 m
A-714	3" (76 mm)	6' / 2 m

HEAVY DUTY WEATHER RESISTANT TIE STRAP

Part No. A-711
Length: 14" (356 mm)

COOLANT WARMING ACCESSORIES

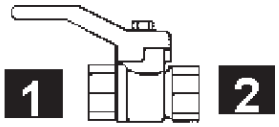
HOSE ACCESSORIES

HOSE CLAMPS

Part No.	Size	EFFECTIVE DIAMETER Min.	Max.	Style
A-2020	4	7/32" / 5.6mm	5/8" / 15.8mm	Standard
A-520	10	9/16" / 14.3mm	1-1/16" / 26.9mm	Shielded
A-2869	10	9/16" / 14.3mm	1-1/16" / 26.9mm	Constant Torque
A-279	12	11/16" / 17.5mm	1-1/4" / 31.7mm	Shielded
A-3950	12	11/16" / 17.5mm	1-1/4" / 31.7mm	Constant Torque
A-3267-16	16	13/16" / 20.6mm	1-1/2" / 38.1mm	Shielded
A-3950-16	16	13/16" / 20.65mm	1-1/2" / 38.1mm	Constant Torque
A-3950-20	20	15/16" / 23.8mm	1-3/4" / 44.4mm	Constant Torque
A-3267-24	24	1-1/16" / 26.9mm	2" / 50.8mm	Shielded
A-3950-24	24	1-1/16" / 26.9mm	2" / 50.8mm	Constant Torque

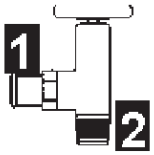
BALL VALVES

Part No.	NPT Thread 1	NPT Thread 2	Notes
A-461	1/2"	1/2"	
A-2838	1/2"	1/2"	Male/Female
A-3696-12	3/4"	3/4"	
A-3696-16	1"	1"	
A-3696-24	1-1/2"	1-1/2"	



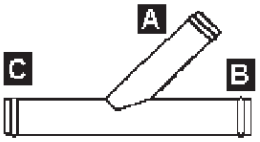
TRUCK VALVES – BRASS

Part No.	I.D. Hose Size 1	I.D. Thread Size 1	Thread Size 2	Handle
A-526	5/8" / 16mm	N/A	3/8" NPT	Tee
A-275	3/4" / 19mm	N/A	1/2" NPT	Round



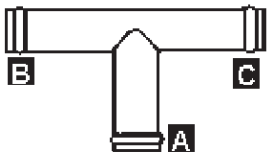
BEADED WYES – STEEL

Part No.	DIM A	DIM B	DIM C
A-457	5/8"	5/8"	5/8"
A-459	3/4"	3/4"	3/4"



BEADED TEES – STEEL

Part No.	DIM A	DIM B	DIM C
A-2321	5/8"	5/8"	5/8"
A-2323	5/8"	7/8"	7/8"
A-3600	3/4"	3/4"	3/4"
A-2322	3/4"	7/8"	7/8"



Zerostart®

CAB POWER®
CAB POWER® PLUS

Cab Electrification

CAB & CARGO

Secondary Heat Source

INTERIOR CAR HEATER

Multi Purpose Heater

CAB POWER® CAB POWER® PLUS

OPTIONAL CHARGER

A series of pre-wired, modular components for sleeper cabs in over-the-road trucks and service vehicles. The system provides electrification to the truck cab with power from 120V shore power or 12V battery & inverter.

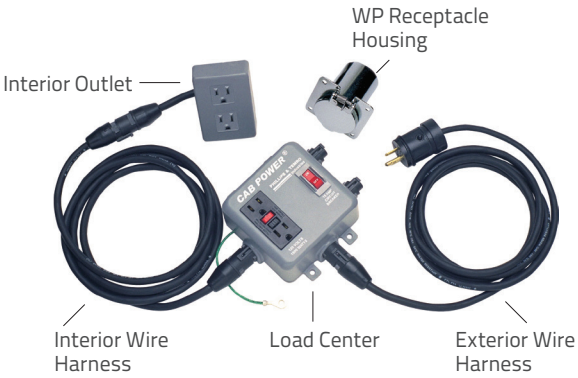
BENEFITS

- Provides driver comfort/hotel load appliances without engine idling
- Idle reduction results in fuel cost savings, less engine wear, and reduced emission system wear
- Modular design features quick connect cables, and outlets for safe, simple installation
- Factory installed or added as an aftermarket feature to any make or model of truck
- Internal outlet(s) can be conveniently mounted near appliances eliminating extension cords
- Optional inverter with charger
- Cab Power Kits are NOT returnable (8500633, 8500652, 8500675)

CAB POWER®

Part No. 8500633

- Load Center
- 54" Interior Wire Harness – to Outlet
- Surface Mount Interior Outlet
- 85" Exterior Wire Harness – to Receptacle Housing
- WP Receptacle Housing
- Grommet
- Fastener Kit



CAB POWER® PLUS

Part No. 8500652

- 1800W Inverter – 15A Connectors
- 163" Interior Wire Harness – to Outlet
- Surface Mount Interior Outlet
- 85" Exterior Wire Harness – to Receptacle Housing
- WP Receptacle Housing

CAB POWER® PLUS

WITH CHARGER

Part No. 8500675

- 1800W Inverter – 15A Connectors & 40A Charger
- 163" Interior Wire Harness – to Outlet
- Surface Mount Interior Outlet
- 85" Exterior Wire Harness – to Receptacle Housing
- WP Receptacle Housing

CAB POWER®
CAB POWER® PLUS

Zerostart®

SYSTEM FEATURES

	Cab Power	Cab Power Plus	Cab Power Plus with Charger
Shore Power	X	X	X
Inverter		X	X
Battery Charger			X
Ground Fault Protection	X	X	X
Short-Circuit Protection	X	X	X
Interior Wire Harness & Outlets	X	X	X
AC In Harness & Receptacle Housing	X	X	X
OEM Installation	X	X	X
Aftermarket Installation	X	X	X

SERVICE PARTS & ACCESSORIES

Part No.	Description	Cab Power	Cab Power Plus		Cab Power Plus w/ Charger	
			15A	20A	15A	20A
LOAD CENTER OR INVERTERS						
8500676	Load Center	X				
8500658	1800W Inverter – 15A Connectors		X			
8500672	1800 W Inverter - 20A Connectors			X		
8500663	1800 W Inverter - 20A Connectors & 40A Charger					X
CORDSETS						
8500641	Interior Cordset, 15A, 14/3 SJOW, 54" (to Outlet)	X	X		X	
8500638	Interior Cordset, 15A, 14/3 SJOW, 96" (to Outlet)	X	X		X	
8500639	Interior Cordset, 15A, 14/3 SJOW, 163" (to Outlet)	X	X		X	
8500657	Interior Cordset - Y Splice, 14/3 SJOW, 15.8" (to Outlet)		X		X	
8500666	Interior Cordset - Y Splice, 20A, 12/3 SJOW, 15.8" (to Outlet)			X		X
8500668	Interior Cordset, 20A, 12/3 SJOW, 153" (to Outlet)			X		X
8500640	Interior Cordset, WP Plug, 85" (to WP Receptacle)		X		X	
8500642	Exterior AC In Cordset, 120V, 15A, Std 5-15 Plug, 54"	X	X		X	
8500643	Exterior AC In Cordset, 120V, 15A, Std 5-15 Plug, 96"	X	X		X	
8500644	Exterior AC In Cordset, 120V, 15A, Std 5-15 Plug, 163"	X	X		X	
OUTLETS						
8500634	Surface Mount Outlet, 15A	X	X		X	
8500635	Flush Mount Outlet, 15A	X	X		X	
WP RECEPTACLE & BRACKET						
8500637	WP Receptacle, Chrome, Cab Power Insignia	X	X	X	X	X
8606048	Mounting Bracket For WP Receptacle	X	X	X	X	X

CAB & CARGO HEATERS

Zerostart®

Provides a secondary heat source in trucks, sleeper cabs, buses, & off-road equipment. Numerous models available that range in volts, capacity, airflow and dimensions to fit your application. Custom fabrication available by contacting customerservice@phillipsandtemro.com.

FEATURES

- 2-speed reversible fan motors
- Heavy steel construction
  - 14-gauge, Model 200 & 300
  - 20-gauge, Model 100, 400 & 500
- Installation kit included

APPLICATIONS

- Trucks
- Sleeper Cabs
- Buses
- Off-Road Equipment

Model 100
(150 CFM Max)

MODEL 100

Part No.	Volt	Capacity (BTU/hr)	Airflow (CFM)	Current (Amps)	Dimensions (H x W x D)	Outlet Diameter	Outlet Direction	Wt. (Lbs)
7000101	12	17,500	150	3.9	7.5 x 8.6 x 7.7" (191 x 219 x 196mm)	5/8" (16mm)	Rear Top	10.0
7000103	24	17,500	150	2.0	7.5 x 8.6 x 7.7" (191 x 219 x 196mm)	5/8" (16mm)	Rear Top	10.0

Model 200
(7000202, 7000205, 7000208) (250 CFM Max)

MODEL 200

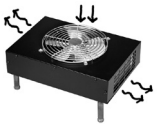
Part No.	Volt	Capacity (BTU/hr)	Airflow (CFM)	Current (Amps)	Dimensions (H x W x D)	Outlet Diameter	Outlet Direction	Wt. (Lbs)
7000201	12	30,000	250	9.4	9.3 x 11.5 x 10.6" (237 x 292 x 270mm)	5/8" (16mm)	Rear Left	26.5
7000202	12	30,000	250	9.4	9.3 x 11.5 x 10.6" (237 x 292 x 270mm)	5/8" (16mm)	Left*	26.5
7000203	12	30,000	250	9.4	9.3 x 11.5 x 10.6" (237 x 292 x 270mm)	5/8" (16mm)	Right	26.5
7000207	24	30,000	250	4.7	9.3 x 11.5 x 10.6" (237 x 292 x 270mm)	5/8" (16mm)	Rear Left	26.5
7000208	24	30,000	250	4.7	9.3 x 11.5 x 10.6" (237 x 292 x 270mm)	5/8" (16mm)	Left*	26.5

Model 300
(7000302, 7000305, 7000308, 7000311)
(325 CFM Max)

MODEL 300

Part No.	Volt	Capacity (BTU/hr)	Airflow (CFM)	Current (Amps)	Dimensions (H x W x D)	Outlet Diameter	Outlet Direction	Wt. (Lbs)
7000301	12	40,000	325	8.9	7.7 x 17.4 x 9.4" (196 x 442 x 239mm)	5/8" (16mm)	Rear Left	28.3
7000302	12	40,000	325	8.9	7.7 x 17.4 x 9.4" (196 x 442 x 239mm)	5/8" (16mm)	Left*	28.3
7000303	12	40,000	325	8.9	7.7 x 17.4 x 9.4" (196 x 442 x 239mm)	5/8" (16mm)	Right	28.3
7000308	24	40,000	325	4.5	7.7 x 17.4 x 9.4" (196 x 442 x 239mm)	5/8" (16mm)	Left*	28.3
7000309	24	40,000	325	4.5	7.7 x 17.4 x 9.4" (196 x 442 x 239mm)	5/8" (16mm)	Right	28.3

Note: Model 300 requires (2) installation kits - Part No. 7100001



Model 400
(130 CFM Max)

MODEL 400

Part No.	Volt	Capacity (BTU/hr)	Airflow (CFM)	Current (Amps)	Dimensions (H x W x D)	Outlet Diameter	Outlet Direction	Wt. (Lbs)
7000401	12	13,500	130	4.3	9.3 x 11.5 x 10.6" (237 x 292 x 270mm)	5/8" (16mm)	Bottom	10.4
7000403	24	13,500	130	2.2	9.3 x 11.5 x 10.6" (237 x 292 x 270mm)	5/8" (16mm)	Bottom	10.4

Model 500
(7000502, 7000504, 7000506, 7000508)
(150 CFM Max)

MODEL 500

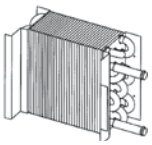
Part No.	Volt	Capacity (BTU/hr)	Airflow (CFM)	Current (Amps)	Dimensions (H x W x D)	Outlet Diameter	Outlet Direction	Wt. (Lbs)
7000501	12	17,500	150	4.4	7.6 x 8.5 x 4.3" (193 x 109 x 26mm)	5/8" (16mm)	Bottom Right.	7.4
7000502	12	17,500	150	4.4	7.6 x 8.5 x 4.3" (193 x 109 x 26mm)	5/8" (16mm)	Rear Right*	7.4
7000505	24	17,500	150	2.2	7.6 x 8.5 x 4.3" (193 x 109 x 26mm)	5/8" (16mm)	Bottom Right	7.4
7000506	24	17,500	150	2.2	7.6 x 8.5 x 4.3" (193 x 109 x 26mm)	5/8" (16mm)	Rear Right*	7.4

* Outlet direction featured in photos

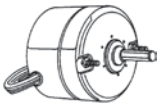
CAB & CARGO HEATERS

Zerostart®

DEFROSTER FANS, HEAT EXCHANGERS & SERVICE PARTS



Part No.	Description	For use in Models No.S
HEAT EXCHANGERS		
7100022	Model 100 Heat Exchanger (3/4" R top)	
7100023	Model 100 Heat Exchanger (5/8" R top)	
7100012	Model 200 Heat Exchanger (3/4" side)	
7100013	Model 200 Heat Exchanger (5/8" side)	
7100014	Model 200 Heat Exchanger (3/4" rear)	
7100015	Model 200 Heat Exchanger (5/8" rear)	
7100016	Model 300 Heat Exchanger (3/4" side)	
7100017	Model 300 Heat Exchanger (5/8" side)	
7100020	Model 400 Heat Exchanger (3/4" bottom)	
7100021	Model 400 Heat Exchanger (5/8" bottom)	
7100008	Model 500 Heat Exchanger (3/4" bottom)	
7100009	Model 500 Heat Exchanger (3/4" rear)	
7100010	Model 500 Heat Exchanger (5/8" bottom)	
7100011	Model 500 Heat Exchanger (5/8" rear)	



MOTORS		
7100004	12-Volt Motor (short)	100, 300, 400, 500, & 7009001
7100005	12-Volt Motor (long)	200
7100006	24-Volt Motor (short)	100, 300, 400, 500
7100007	24-Volt Motor (long)	200

Note: 12/24 Volt Motor SHORT — Shaft Size .3122" x 1.44" **Note:** 12/24 Volt Motor LONG — Shaft Size .3122" x 1.88"

SERVICE FAN BLADES		
7100002	7" (17.6cm) Fan Blade	100, 300, 400, 500
7100003	8" (20.1cm) Fan Blade	200
7100025	6" (15.5cm) Fan Blade	Model 7009001

DEFROSTER FANS		
7602855	12 Volt – Defroster Fan – 2 Speed	
7602891	24 Volt – Defroster Fan – 2 Speed	
INSTALLATION KITS		
7100001	Installation Kit (includes on/off switch, electrical terminals)	
DEFROSTER FAN SERVICE PARTS		
7670036	Replacement 2-Speed Switch	
7675755	Replacement Front Fan Guard	
7675771	Replacement Rear Fan Guard	
7619162	Blade	

INTERIOR CAR HEATER

Part No. 2600900

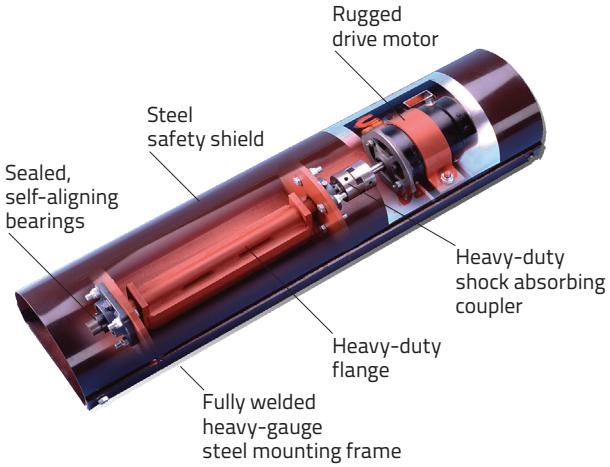
- Ideal for use in passenger, light-duty, and recreational vehicles
- Mounts on floor or under dash. Mounting bracket included
- 900 Watts – 120 Volt AC
- 3,000 BTU
- Compact size: 7" (17.6 cm) (L) x 4.5" (11.3 cm) (W) x 2.75" (7 cm) (H)
- Cord length: 7.5 ft. (2.3 m)
- Includes a blower fan

Car Heater Replacement Cord
Part No. 3600055

9 VIBRA® DUMP BODY VIBRATOR

Zerostart®

Vibra Dump Truck Body Vibrators use vibrating thrust to dislodge materials from the dump body. Heavy duty and durable for extreme conditions.



BENEFITS

- Dumping time is reduced due to faster discharge of material
- Easy to install: 2 people, 1 hour
- Vibra® works while moving or standing still
- Up to 3000 lbs of non-directional thrust is delivered at low frequency to minimize metal and weld fatigue

Part No.	Model	Cable	Volts	Amps	Thrust Impact Force	Operating Temperature		Shipping Weight
8000905	V2000	-	12	380	2000 lbs (907 kg)	-30 to 140 °F	-34 to 60 °C	89 lbs (40 kg)
8000581	V2000	44' (13 m)	12	380	2000 lbs (907 kg)	-30 to 140 °F	-34 to 60 °C	89 lbs (40 kg)
8000867	V3000	-	12	380	3000 lbs (1360 kg)	-30 to 140 °F	-34 to 60 °C	100 lbs (45 kg)
8001014	V3000	44' (13 m)	12	380	3000 lbs (1360 kg)	-30 to 140 °F	-34 to 60 °C	100 lbs (45 kg)

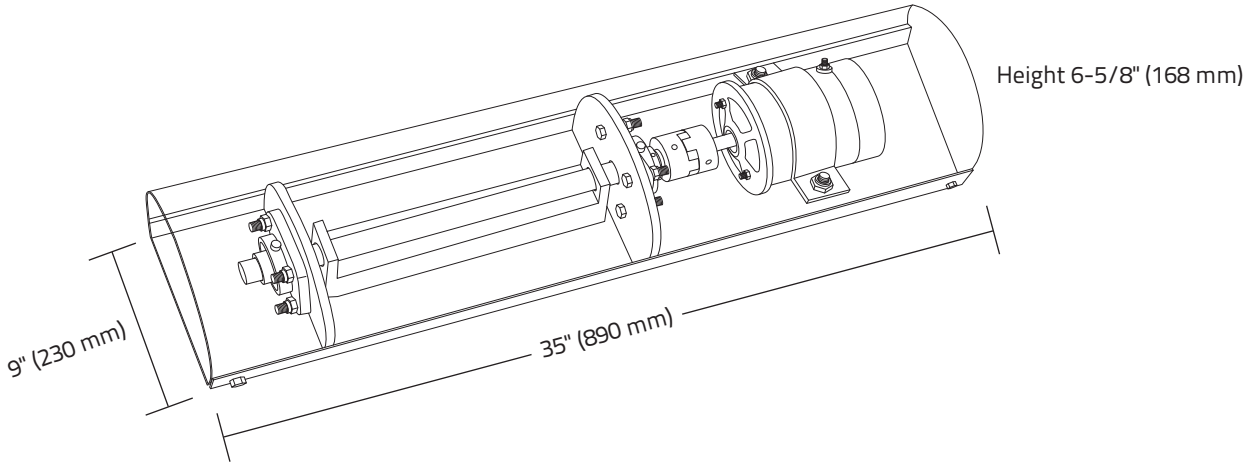
ACCESSORIES

Part No.	Description
8000980	Aluminum Mounting Plate

SERVICE PARTS

Part No.	Description
8001081	Shaft Bearing
8001154	Coupling w/ Rubber Insert
8001367	Steel Hood Cover
8001006	End Cap (2)
8001200	Insert Only (For Coupling)
8001030	Motor
8001251	Solenoid
8001316	Switch

PRODUCT DIMENSIONS



This measured / metered shot system limits the amount of starting fluid that can enter an engine and provides for optimum starting with less chance of waste or engine damage.

- Starting Fluid
- Diesel Starting Fluid Kits
- Starting Fluid System – Atomizers
- Thermostats

DIESEL STARTING FLUID

8200327

8201277

- All ZeroStart Diesel Starting Fluid kits require cylinder #8200327. Gaskets are not included with cylinders.
- Order in case quantities only, 12 cylinders per case
- Starting fluid cylinders are **NOT returnable**.
- Safety Data Sheets (SDS) are available on our website at phillipsandtemro.com.

D.O.T. Approved Replacement Starting Fluid Cylinders

Part No.	Description	Size	Nozzle
8200327	18 oz. 1" neck (Used with most kits)	3" x 11"	1" – 20
8201277	21 oz. 1" neck (Fits KBI Dieselmatic kits)	4" x 8"	1" – 20
8203903	1" standard gaskets (cork gasket flat)	Pkg. of 50	

DIESEL STARTING FLUID SYSTEMS

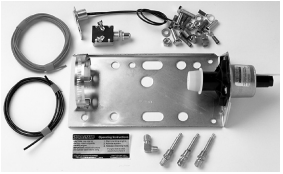
Zerostart®

- Measured/metered shot system limits the amount of starting fluid that can enter an engine—provides for optimum starting with less chance of waste or engine damage
- Convenient, one person operation
- Economical – about 16# per start
- High pressure replacement cylinders meet D.O.T. standards
- Available in 12 and 24 volt electrical and mechanically operated models
- Uses standard 1 inch cylinders

Note: Diesel Starting Fluid Systems are NOT for use with engines equipped with glow plug or flame thrower systems, or engines equipped with intake air heater.

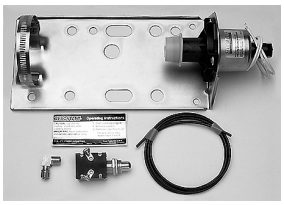
KIT DESCRIPTIONS

Application specific part numbers are listed on the following page.



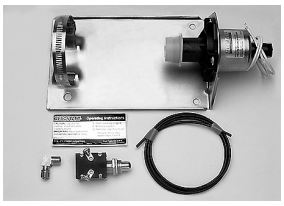
E-Z Stock, E-Z Mount Electrical Kit (12 Volt)
Part No. 8203237

One part number covers most class 7 and 8 vehicles. Kit includes: 3 atomizers (8202966, 8202974, 8202982), switch, valve fitting, 48" nylon tube, dash decal, 16 gauge wire, valve and mounting brackets & surface-mount thermostat. Starting fluid cylinder NOT included.



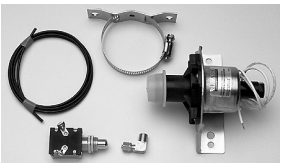
E-Z Mount Electrical Kit (12/24 Volt)

Replace existing systems, or custom design your own. Kit includes: valve and mounting bracket mounting bracket, switch, valve fitting, dash decal, 48" nylon tubing. Atomizer not included.



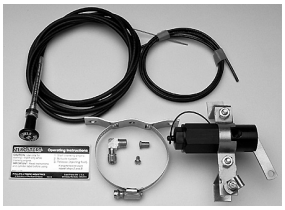
Mini E-Z Mount Electrical Kit (12 Volt)
Part No. 8200001

Provides the benefits of our full-size measured shot system in a compact design—for use with 250-500 CID applications. Includes: Mini valve with mounting bracket, push button switch, valve fitting, 48" nylon tubing, dash decal. Atomizer not included.



Standard Electrical Kit (12/24 Volt)

Direct replacement for some factory installed systems. Kit includes: Valve, switch, cylinder clamp, valve fitting, dash decal, 48" nylon tubing. Atomizer not included.



Mechanical Kit

A simple, economical way to add ether injection. Kit includes: Valve, cylinder clamp, 84" control cable, valve fitting, dash decal, 48" nylon tubing. Atomizer not included.

Aerosol Starting Fluid Valve (12 Volt)
Part No. 5801001

Continuous flow system for replacement of industrial and agricultural applications. Uses standard 7.5 – 8.5 oz. spray can (not included). Leak-proof seal and easy one-hand installation of starting fluid can simplify use. Kit includes ether valve and elbow connection.

DIESEL STARTING FLUID SYSTEMS

Zerostart®

STARTING FLUID SYSTEM ATOMIZERS

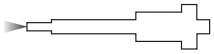
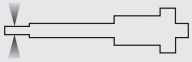
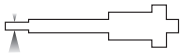
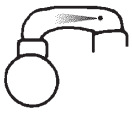
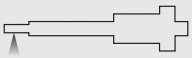
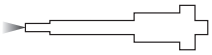
- Designed for most engines with 1/8" or 1/4" NPT opening
- Provides proper direction and atomization of pressurized fluid
- Sintered bronze filter maintains purity of intake air
- Spray pattern clearly marked for easy installation

Dual Atomizer Kit
(for use with 'V' engines)
#8203091

Atomizer (see below)
(1/8" x 1-1/4")

1/4" Bushing
#8203032

ATOMIZER APPLICATIONS

Part No. Orifice/Size	Applications	Location	Spray Pattern
8203067 .018	Caterpillar 3406B Turbo	Pre-tapped hole in aftercooler	
8202931 .011	Cummins B & C Series	Pre-tapped manifold	
8202966* .018 Blue	Cummins Non-Turbo & other manifolds over 2"	Center intake manifold	
	Detroit Diesel blower box	Center blower box	
8202990 .018	Mack in-line 6	Pre-tapped hole between cylinders #5 & #6	
8203016 .013	Mack Midliner	Air intake pipe or intake manifold	
Under 500 CID 8202974* .013 Yellow	Ford 6.6/7.8L, Cummins & Perkins in-line, all Turbocharged engines	Direct either flow against flow of incoming air 	
8200003 .018	Cummins 600 Swivel Style		
8200004 .013	Cummins 600 Swivel Style		
Over 450 CID 8202982* .018 Red	(Pressure side of turbo), DDA or IH Air Intake Horn		
8202958 .013	DDA 8.2 Litre	Pre-tapped hole in air cleaner adapter	
8203008 .018	Ford industrial diesel	Direct flow of starting fluid into air stream, not directly into cylinder.	

*Included in kit 8203237 Note: All atomizers 1/8" NPT.

DIESEL STARTING FLUID SYSTEM THERMOSTATS

- Locks out electrical valve operation at specified engine temperatures
- Surface mount installs without draining engine coolant
- Threaded 1/2" NPT installs directly in any 1/2" NPT opening in water jacket

Surface Mount

Threaded Style

Part No.	Type	Temp ON	Temp OFF
8200386	Surface Mount	60°F (16°C)	85°F (29°C)
8202281	Threaded	45°F (7°C)	65°F (18°C)
8291837	Threaded	70°F (21°C)	100°F (38°C)

DIESEL STARTING FLUID SYSTEMS

Zerostart®

GENERAL APPLICATIONS

Engine Size	Shot Size	EZ-Mount Electrical 12V	EZ-Mount Electrical 24V	Standard Electrical 12V	Standard Electrical 24V	Mechanical
Under 250 CID (4L)	1.5 cc	8204136	N/A	8204179	N/A	N/A
250-500 CID (4-8L)	3 cc	8203938	8203946	8200106	8200165	8200211
450-950 CID (8-15.5L)	6 cc	8203954	8203962	8200157	8200238	8200270
Over 900 CID (14-7L)	12 cc	8203970	8203989	N/A	8200602	8200432

SERVICE PARTS

Engine Size	Shot Size	EZ-Mount Electrical 12V	EZ-Mount Electrical 24V	Standard Electrical 12V	Standard Electrical 24V	Mechanical
Under 250 CID	Valve Only	N/A	N/A	8204101	N/A	N/A
250-500 CID	Valve Only	8203997	N/A	8202427	N/A	8202397
450-950 CID	Valve Only	8204012	N/A	8202435	8202478	N/A
Over 900 CID	Valve Only	8204039	N/A	8202443	N/A	8202419
	Cylinder Clamp	N/A	N/A	8202575	8202575	N/A
	Switch	8202699	8202699	8202699	8202699	N/A
	84" Control Cable	N/A	N/A	N/A	N/A	8202559
	Wirestop	N/A-	N/A	N/A	N/A	8202567
	Valve fitting	8202532	8202532	8202532	8202532	8202532
	48" Nylon tube	8202540	8202540	8202540	8202540	8202540
	Dash decal	8202583	8202583	8202583	8202583	8202583

Note: All starting fluid kits, except mini-ether kits, use starting fluid cylinder #8200327 (not included).

All kits, except for #8203237 require atomizer. See following page for atomizer information.

ENGINE SPECIFIC APPLICATIONS — STARTING FLUID SYSTEMS APPLICATIONS

Make & Engine Model	E-Z Stock E-Z Mount	EZ-Mount Electrical 12V	EZ-Mount Electrical 24V	Standard Electrical 12V	Standard Electrical 24V	Mechanical	Atomizer
CATERPILLAR							
1100, 3208, 3306, others over 500 cid1	8203237	8203954	8203962	8200157	8200238	8200270	8202982
3406, 3408, 1693, D3461	8203237	8203954	8203962	8200157	8200238	8200270	8202966 (A)
3406B turbo1	-	8203954	8203962	8200157	8200238	8200270	8203067 (A)
31761	8203237	8203954	8203962	8200157	8200238	8200270	8202982 (A)
CUMMINS							
855 CID series, all turbo over 400 cid	8203237	8203954	8203962	8200157	8200238	8200270	8202982
B Series – 4 cylinder	(D)	8204136	-	8204179	-	-	8202931
B Series – 6 cylinder	(D)	8203938	8203946	8200106	8200165	8200211	8202931
C Series	-	8203954	8203962	8200157	8200238	8200270	8202931
10 Litre, 11 Litre	8203237	8203954	8203962	8200157	8200238	8200270	8202982
DETROIT DIESEL							
3-53, 4-53, 3-71, 4-71	(D)	8203938	8203946	8200106	8200165	8200211	(B, C)
6-71, 6V-53, 8V-53, 6V-71, 6V-92	8203237	8203954	8203962	8200157	8200238	8200270	(B, C)
8V-71, 8V-92	-	8203970	8203989	-	8200602	8200432	(B, C)
8.2 Litre	-	8203954	8203962	8200157	8200238	8200270	8202958
Series 60 (677 & 774 CID)	-	8203954	8203962	8200157	8200238	8200270	8202966
FORD							
6.6L, 7.8L	8203237	8203938	8203946	8200106	8200165	8200211	8202974
INTERNATIONAL							
D150 (461 CID), D170, D190	8203237	8203954	8203962	8200157	8200238	8200270	(B, C)
D550 (549 CID), V800 (798 CID)	8203237	8203954	8203962	8200157	8200238	8200270	(B, C)
817 (817 CID), 9 Litre	8203237	8203954	8203962	8200157	8200238	8200270	(B, C)
D, DT31—DT312, DT360, DT436, DT466	(D)	8203938	8203946	8200106	8200165	8200211	8202974
MACK							
Midliner	-	8203938	8203946	8200106	8200165	8200211	8203016
ALL 6 Cylinder	-	8203954	8203962	8200157	8200238	8200270	8202990
864, 865 & 866 V-8 series	-	8203954	8203962	8200157	8200238	8200270	8202982
MERCEDES							
ALL	-	8203938	8203946	8200106	8200165	8200211	8202958
PERKINS							
ALL	(D)	8203938	8203946	8200106	8200165	8200211	8202982

If your engine is not under "Specific Applications", then choose a kit based on the engine size.

(A)–Air-to-air aftercooled engines (ATAAC) generally will use an 8202982 atomizer installed in pipe between discharge side of aftercooler and engine manifold.

(B) –Use 8202966 if installed in blower box or manifold.

(C)–Use 8202982 if installed in air intake horn.

(D) –Mini ether system (#8200001) may be used for this application.

RECOMMENDED PART APPLICATION BASED ON CLIMATE & EQUIMENT

Use the chart below to determine the recommended part based on the climate, starting system and equipment classification.

1. Select the appropriate 'Temp" the equipment will operate under

ATTENTION: 90% of maximum temperature will be reached in 5 hours of operation but the heater is designed for continuous overnight use.

2. Select the proper 'Starting System"
3. Determine what 'Engine Class" the equipment is classified
4. If you need additional information, please contact your Phillips & Temro Industries sales representative or contact customer service directly.

TEMP °F/°C	Starting System	Engine Class			
		Small Diesels 150 to 350 CID (2.4 to 5.7 liters)	**Medium Duty Diesels** to approx. 550 CID (9.0 liters)	**Heavy Duty Diesels** to approx. 1150 CID (18.8 liters)	**Large Duty Diesels** Industrial/Off Highway
40/4 ↓ **0/-18**	**Coolant Heater**	400 to 750 Watt Immersion, 1000 Watt Circulation Heater	750 or 1000 Watt Immersion, 1500 Watt Circulation Heater	1500 Watt Immersion, 1500 Watt Circulation Heater	2500 Watt Tank, 2250-2500 Watt Circulation Heater
	Oil Pan Heater	150 Watt Immersion with Thermostat	150 Watt Immersion or 300 Watt Clamp-On	300 Watt Immersion or 500 Watt Clamp-On	300 Watt Immersion
	Additional Products	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater
0/-18 ↓ **-30/-34**	**Coolant Heater**	600 or 750 Watt Immersion, 1000 Watt Circulation Heater	1000 Watt Immersion, 2250-2700 Watt Circulation Heater	1500 Watt Immersion, 2000 Watt Tank, 2000-2250 Watt Circulation Heater	2500 Watt Tank, 2250-3500 Watt Circulation Heater
	Oil Pan Heater	150 Watt Immersion with Thermostat	150 Watt Immersion or 300 Watt Clamp-On	300 Watt Immersion or 500 Watt Clamp-On	450 Watt Immersion
	Additional Products	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater
-30/-34 ↓ **-60/-51**	**Coolant Heater**	750 Watt Immersion, 1500 Watt Circulation Heater	1500 Watt Immersion, 2250-2700 Watt Circulation Heater	2000 Watt Immersion, 2500-3500 Watt Circulation Heater	(2) 2500 Watt Circulation, (2) 2500-3500 Watt Circulation Heaters
	Oil Pan Heater	150 Watt Immersion with Thermostat	300 Watt Immersion or 500 Watt Clamp-On	450 Watt Immersion	450 Watt Immersion
	Additional Products	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater	Measured Shot Ether Kit, Battery Heater

TECHNICAL INFORMATION

HEATERS

Avoid Common Engine Heater Installation Mistakes:

Do not use an engine heater when using 100% antifreeze.
A 50/50 mixture is recommended. Using a mixture that is richer than 65% will cause the element to fail prematurely.

Do not run your engine while the engine heater is plugged in.
This will create an air bubble around the element which will then cause the element to burn out prematurely.

Do not plug in your engine heater prior to installing to "see if it works".
Without being submerged in liquid, the heat generated has nowhere to go and could result in serious burns.

How to safely test a heater.
Connect a multi-meter to the heater pins. A reading between 5 ohms and 100 ohms indicates that the heater is working correctly.

Do not use petroleum based lubricants on the O-ring.
A petroleum based lubricant will significantly reduce the life of the O-ring. Use antifreeze instead.

Do not over tighten the heater.
The O-ring will form an adequate seal when the heater is torqued to the specifications in the instructions. Over tightening will strip the screw threads and reduce the quality of the seal.

After heater use, disconnect the extension cord from the heater cord by firmly grasping each plug and pulling in opposite directions.
Only grasp the plugs. Do not grasp, pull, yank or snap the cords to disconnect power. Damage will result to the power cord connections which could result in permanent malfunction and even an electrical short.

DETERMINING CURRENT USAGE

The current usage of a heater can be determined based on a heaters volt and wattage rating.

Watts	Amperes @ 120 Volts	Amperes @ 240 Volts	Cost per hour *
75	0.63	0.31	.008
100	0.83	0.42	.010
150	1.25	0.63	.015
200	1.67	0.84	.020
300	2.50	1.25	.030
450	3.75	1.88	.045
500	4.17	2.08	.050
750	6.25	3.12	.075
850	7.08	3.54	.085
1000	8.33	4.16	.100
1500	12.50	6.25	.150
2000	16.67	8.34	.200
2500	20.83	10.42	.250

*Based on 10¢ per KWH

TECHNICAL INFORMATION

SILICONE CONNECTOR CHART

Single Cord with male plug & female silicone connector

Silicone Connector	Base Cord Part No.	Length	Specifications	Lit Plug Part No.	Length	Flip Cap Part No.	Power Cord Length
A	3600001	5' (1.52 m)	Pin Diameter: 0.105"	3600118	5' (1.52 m)	3600126	16' (5 m)
	3600023	13" (33 cm)		3600118	5' (1.52 m)	3600126	16' (5 m)
AA	3600002	5' (1.52 m)	Pin Diameter: 0.09"				
B	3600010	7.5' (2.29 m)					
	3600019	3' (0.9 m)					
C	3600003	5' (1.52 m)					
D	3600005	5' (1.52 m)		3600117	5' (1.52 m)	3600127	16' (5 m)
E	3600036	1' (30.3 cm)					
	3600006	5.8' (1.8 m)		3600116	5' (1.52 m)	3600124	16' (5 m)
	3600021	7.8' (2.4 m)					
F	3600007	5' (1.52 m)					
G	3600016	5.8' (1.8 m)					
H	3600004	5' (1.52 m)				3600129	16' (5 m)
	3600022	13" (33 cm)				3600129	16' (5 m)
I	3600080	5' (1.52 m)				3600128	16' (5 m)
J	3600083	5' (1.52 m)	GM - Threaded Cordnut	3600119	5' (1.52 m)		
	3600100		GM - Cord Clip	3600119	5' (1.52 m)		
	3600082		GM - Includes t-stat,use with 2006 & newer models to avoid check engine light				
	3600120			3600119	5' (1.52 m)		

TECHNICAL INFORMATION

HEAVY DUTY SILICONE CONNECTORS

Silicone Connector	Pin Distance	Pin Diameter
K	0.360"	0.138"
L	0.375"	0.138"
M	0.360"	0.138"

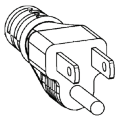
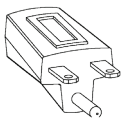
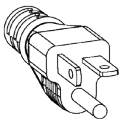
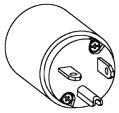
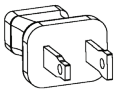
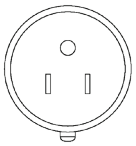
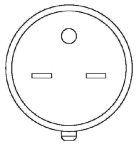
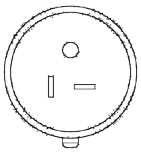
Type B
Right Angle

Type K
Right Angle

Type L
Right Angle

Type M
Straight

PLUG TYPES

PLUG TYPE	A 120 Volt 15 Amp	B 240 Volt 15 Amp	C 120 Volt 20 Amp	D 240 Volt 20 Amp	E 120 Volt – 15 Amp No Ground	F 125 Volt – 30 Amp	G 250 Volt – 30 Amp
STANDARD MALE PLUGS							
	NEMA 5-15	NEMA 6-15	NEMA 5-20	NEMA 6-20	NEMA 1-15	NEMA L5-30	NEMA L6-30
WEATHERPROOF MALE PLUGS				NA	NA	NA	NA
	A (WP)	B (WP)	C (WP)				

EXTENSION CORDS

Cord Selection and Usage:

When using an extension cord with one or more heating devices, it is important that the TOTAL current draw of all devices not exceed the capacity of the extension cord or the AC circuit. Use only 3-wire GROUNDED extension cords. Ground Fault Interrupter (GFI) service is also recommended.

Recommended Wire Gauges – Long Length power supply Cords

	Current Carrying Capacity - Amps									
Length	4	6	8	10	12	14	16	18	20	25
15	18	18	16	16	16	16	14	14	12	12
25	18	18	16	16	14	14	12	12	12	10
50	18	18	16	16	14	14	12	12	12	10
100	16	16	14	14	14	14	12	12	10	10
150	16	14	12	12	12	12	10	10	10	8

Corporate Headquarters

9700 West 74th Street
Eden Prairie, MN 55344
P: 952-941-9700 or 800-328-6108
sales@phillipsandtemro.com
customerservice@phillipsandtemro.com

Delano Location

570 S 7th Street
Delano, MN 55328
P: 763-972-2758 or 800-654-5382
sales@phillipsandtemro.com
customerservice@arctic-fox.com

phillipsandtemro.com

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